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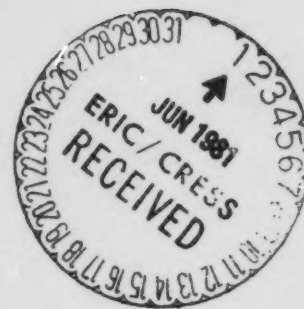
ABSTRACT

The Edgewood Independent School District (San Antonio, Texas), using a mini-system of one high school, one middle school, and four elementary schools, conducted an Experimental Schools Program from 1972-1977 to test a local decision making, long-term innovative program to effect substantial changes in the affective and cognitive characteristics of a largely Mexican American student body. The program utilized intervention components of staff development, curriculum development, internal evaluation, family services, cultural advocacy, and services to the handicapped to operationalize its instructional strategies. Cross-sectional and longitudinal analyses were performed on the constructs of educational change, educational compatibility, social context, and student impacts. Evaluation data indicated: (1) about the same range of characteristics (student attitudes, self-concept, motivation) in program students as those tested elsewhere by the same instruments; (2) no consistent longitudinal improvement of treatment students' standardized test scores over those of the comparison group nor in relationship to national norms; (3) little student, faculty, administration or community support for teaching in Spanish and teaching about Mexican American culture; and (4) high school completion classes for adults, college courses facilitated, and the alternative high school showed high acceptance. An important implication was the necessity of carefully integrating any project into the existing system. (Author/CH)

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VOLUME I:
FINAL SUMMARY REPORT
ON THE
EXPERIMENTAL SCHOOLS PROJECT,
EDGEWOOD INDEPENDENT SCHOOL DISTRICT

(Volume II, Report Abstracts, follows after Volume I)

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During the past five years, Development Associates has enjoyed, with few exceptions, a working climate within the Edgewood Independent School District that could hardly be improved. The intense measurement in the schools, monitoring a wide range of administrative and instructional activities, and examination of documents in the experimental schools program and in the district, would not have been possible without the support and cooperation of many people. A listing of the collaborators would be so long that it would serve no useful purpose. The company would nevertheless like to express its particular gratitude to those individuals who bore the brunt of the collaboration: Superintendents Jose Cardenas and Ruben Lopez; Associate Superintendents for the experimental program Remigio Garcia, Gloria Zamora, and James Vasquez; Associate Superintendent for Federal Programs Paulene Kee; and Director of the District Pupil Appraisal Office Helen Lozano. The school board members, principals, counselors, and many community members were of invaluable assistance. Above all, Development Associates acknowledges its deep debt to the teachers and pupils of the treatment and comparison schools for their untiring efforts on behalf of the research.

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the conclusions drawn do not necessarily reflect the position nor policy of the National Institute of Education and no official endorsement should be inferred.

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ABSTRACT

The Edgewood Independent School District in San Antonio, Texas, conducted one of the National Institute of Education experimental schools programs from 1972 through 1977. A mini-system of one high school, one middle school, and four elementary schools was established to test a local decision making, long term innovative program to effect substantial changes in the affective and cognitive characteristics of its largely Mexican American student body. The basic premise was that the generally middle class oriented school system was incompatible with the lower economic experiences of the students and the community.

The experimental program, called the Edgewood School Plan during most of its five year life, utilized intervention components of staff development, curriculum development, internal evaluation, family services, and during the early years, cultural advocacy and services to the handicapped, to operationalize its instructional strategies. Primarily, these were composed of service to and participation from the community, infusion of the San Antonio and Mexican American experience into the curricula, individualized instruction, and bilingual (English and Spanish) education. A central staff of about 35 persons were to act as the main change agents and these were supplemented by on site facilitators, counselors, assistant principals, and some aides in the experimental schools.

A private firm, Development Associates, conducted the external evaluation with a San Antonio based research team of from two to eighteen specialists, an advisory panel of outside experts, other professional consultants, and backup services from its home office staff. Cross sectional and longitudinal analyses were performed on the major constructs of educational change, educational compatibility, social context, and student impacts. The design emanated from the experimental project's basic plan which stated that the pupils started school with negative self concept, motivation, and attitudes, that these worsened with exposure to school, and that these caused the low academic achievement. The interventions were to improve the affective characteristics, which in turn, would improve the achievement. One high, one middle, and two elementary schools from the same district were selected for comparing changes occurring in the treatment schools. Large, representative matrix samples were utilized throughout the studies. Development Associates issued two general interim reports, sixteen specialized studies, and this final summarized report with a companion volume of the abstracts of the other eighteen.

The curriculum development component produced a large volume of materials on subject matter topics, particularly in the first and fifth years. Few were tested, revised, and retested but a fast paced mathematics program was an outstanding exception since it underwent extensive testing and reformulation. Some materials were written in both English and Spanish. A few contained content on Mexican Americans; many utilized the Texas and San Antonio experiences in their content. No overall curriculum was developed but some subjects, especially mathematics, provided scope and sequence activities for several grades.

Staff development offered a large amount of training, varying from a few hours on specific topics to courses of several weeks duration. The participants generally rated the training as "useful." Individualization of instruction was a major subject of instruction, followed closely by various topics related to the teaching of language.

The cultural advocacy and services to the handicapped components primarily assisted staff and curriculum development. The latter was merged with curriculum development after the first year and the cultural advocacy tasks were taken over by the other components the last year.

Family services concentrated on special activities for junior and high school students during the first half of the program and then changed to out of school youth and adults projects during the last half. A community college program in conjunction with a local university, an adult high school completion program, and an alternative high school comprised its major efforts.

The internal evaluation component began its efforts a year into the program. It conducted academic achievement testing, a needs assessment survey, the Mooney Problem Check List, several studies of the functioning of principals, several efforts towards a language dominance placement test, a study of classroom practices, and an assessment of some of the staff development training.

Extensive detail on each of the studies and the total evaluation was provided in the special studies. While many of the results were important, they were too numerous to be included in this summarized report. The major conclusions, however, provide the trends necessary to comprehend the most salient aspects of the findings:

- . Intensive investigations into the students' attitudes, self concept, motivation, using more than one instrument, and utilizing both Spanish and English language versions, did not support the premise of negative affective characteristics of these Mexican American students. In fact, in most of the studies, the students showed about the same range of characteristics as those tested elsewhere by the same instruments.

- . Equally intensive studies into the academic achievement of the students showed no consistent, longitudinal improvement of the treatment students' standardized test scores over those of the comparison group nor in relationship to the national norms.

- . The program assumed that the students, faculty, administration, and community would strongly support teaching in Spanish and teaching about the Mexican and/or Mexican American way of life. Except for a few members of each group, the evidence showed little support for these as the program progressed.

The management system did not provide for complete review/approval of some project activities and this appeared to cause some lack of support. On

the other hand, the reduced formality may have allowed greater flexibility. The communications system was incomplete, resulting in low participation of some of the district actors who were expected to be changed by the project. Additionally, by not choosing to monitor the effectiveness of some of its treatment projects, the staff lacked some information that could have been useful.

The high school completion classes for adults, college courses facilitated, and the alternative high school showed high acceptance and the measurable results culminated in the retention of the program subsequent to the termination of the experimental schools effort. The mathematics program was also retained in at least partial form and some other curricular materials were expected to be available in the future. Four staff members were placed in supervisory positions, another as a principal, one in evaluation, and most of the others returned to teaching or sought positions elsewhere.

Each of the iterated findings has implications for educational practitioners. Additionally, the individualized mathematics materials, certain of the bilingual/multicultural materials, and the system for studying the functioning of principals merit particular attention. The most important implication, however, is the necessity of carefully integrating any project into the existing system, measuring its performance meticulously, and communicating the results to the staff, administration, teachers, and the community.

Both researchers and practitioners may benefit from corollary findings and products from the specialized reports, including:

- . A negligible relationship was found between the measured affective characteristics and academic achievement via standardized test scores; a relationship was found between attitudes and teacher assigned grades in the primary grades.

- . The psychometric properties of a social attitudes instrument for primary children were found to be satisfactory in both English and Spanish.

- . The psychometric properties of a self concept and motivation instrument were found to be weak for primary children in either language but moderate for middle and high school students.

- . An educational change model, its instrumentation, and the attendant analysis system was found to have good predictive qualities on the success of certain project elements.

- . Female students quite consistently scored higher than males and particularly so in the innovative program. While no biases toward females could be ascertained in the materials or their implementation, a trend for Mexican American girls to profit more from non-traditional practices appeared certain.

Finally, while many of the projects investigated and the program as a whole produced few measurable positive results, those that appeared successful were those with careful planning, evaluation, revision, and they were implemented by teachers/staff who were expert in their use. Further, they were projects with which the majority of the school personnel, students, and community agreed. These stood out as the elements for success with this Mexican American population.

CHAPTER 1: SETTING OF THE STUDY

In 1970, the US Congress established a small research effort entitled the Experimental Schools Program in the US Office of Education in the Department of Health, Education, and Welfare. The operational premise of experimental schools was that educational reform could possibly be enhanced by the long term (five years) support of pilot programs that demonstrated the efficacy of a "comprehensive change" strategy as a means of fostering educational reform. The notion of comprehensive change implied the implementation, more or less at once, of a total program designed to produce positive educational improvements. It also involved a total target (but not necessarily an entire district) population, in contrast to the previous partial change efforts. (82)

The national office of the Experimental Schools Program was operationalized in mid-December 1970 and by September 1971 had funded the initial three urban schools programs designed to test projects representing a comprehensive combination of promising practices within a coherent design. A second round of competition was announced in March 1971 and led to the funding of an additional three urban schools in September of 1972. These included the Edgewood Independent School District in San Antonio, Bexar County, in South Texas. (28)

The National Institute of Education

On July 1, 1972, the National Institute of Education was created in PL 92-318 "...to provide leadership in the conduct and support of scientific inquiry into the educational process" (81). The Experimental Schools Program was incorporated as a major and vital program in the newly established institute.

The National Institute of Education/Office of Experimental Schools later funded an additional ten rural school projects and three street academies. Eighteen experimental school programs were finally funded throughout the US. All these projects presented, in varying degrees, the opportunity to implement and test innovative departures from traditional educational practices; each addressed a particular set of student population needs. Additionally, the local program staff was given the relative autonomy to identify local educational needs and to execute a comprehensive plan that reflected strategies perceived to be viable by local decision makers. Moreover, programs were designed within the context of assurances of five year funding.

In order to assess the efficacy of local attempts at producing educational change, the National Institute of Education expected to operate through a "levels" concept of evaluation. The first effort, referred to as Level I, was an internal unit within local programs, vested with a formative evaluation role. The second effort, Level II, was also site specific but external to the local programs. It was given a summative evaluation role carried out by an independent contractor. A Level

III national cross site evaluation effort to assess common themes and unique characteristics among all projects was envisioned but was never organized as a distinct unit. Some of the Level carried out by staff members of the National Institute of Education (19) and some were contracted out to other institutions.

From conceptualization of a national experimental schools program to operation of site projects, the basic goals of the activities were that of attempting "...to help solve or alleviate the problems of education ...by strengthening the scientific and technological foundations...and building an effective education research and development system" (81). The institute provided a project officer for the sites, who served as an adviser to the conduct of the programs. When needed, special consultants and other personnel from the National Institute of Education and the US Office of Education were utilized to give technical advice. Similarly, a project officer was designated to work with the external evaluation team, aided, too, by outside consultants and specialists from the several offices in the Institute. The programs, then, and their evaluations were thus organized into working teams to assist in the production of information for practitioners on the conduct of innovative projects and for researchers on the process of educational change.

The Edgewood Independent School District

Originating from two rural schools, Frey and Mackey, the Lake View Gardens Common School District was legally established in 1913 to serve the primarily Anglo and German farm population of that area of Bexar County, Texas. By 1915, the name Edgewood was used. The first high school graduating class, 1937, included six Anglos, three Germans, and three Mexican Americans. World War II saw the area change from farm land to an airbase and a thickly populated suburb of San Antonio. Mexican Americans grew to numerical dominance during and immediately after the war. (3, 65)

By 1970 the population of the district was about 73,000. According to the census taken in that year, fifteen percent of the population over the age of 25 had completed "less than one year" of schooling and sixteen percent had completed high school. Over ninety percent of the district's residents was Mexican American, compared with fifty-two percent for San Antonio as a whole.

The Edgewood district was one of the poorest in the state. Twenty-eight percent of the families had incomes below the poverty level established by the federal government. These incomes were reflected in the property values, the taxable base for district operations, in which 72% were assessed at less than \$10,000. Thus, despite revenues from the state and federal governments, Edgewood expended considerably less per pupil than the state average: \$539 compared to \$694, respectively, in 1971-1972. (13, 69)

In 1968, a series of student and community protests over such issues as fiscal policy, teacher qualifications and ethnicity, physical plants

and conditions, and the recognition of students' rights precipitated a number of changes. Some board composition changes occurred although the majority was still businessmen and all the membership remained Mexican American. The thirteen year tenure of the Anglo superintendent was terminated and a Mexican American was appointed.

After 1968, the board made a number of changes. Corporal punishment was prohibited in the entire district (although later reinstated); the number of degreed teachers rose from 81% to 89% between 1968-1969 and 1972-1973, while during the same period the number of Mexican American teachers in the district rose from 28.4% to 36%. In cooperation with the Model Cities Program, an early childhood education center, an elementary school, and a middle school were funded and built. This brought the number of schools to 26, serving a student population of nearly 23,000, of which 90% was Mexican American, 6% Black, and 4% other, including Anglos.

The community also attempted three important changes that had a potential for improving the fiscal conditions of the district. A suit to stop the construction of low cost federal housing, which increased the number of pupils but had little effect on the taxable property, was successful. (83) A legal move to consolidate the Edgewood district with the San Antonio Independent School District, somewhat more affluent than Edgewood, failed. (69) The celebrated Rodriguez et al case would have forced equalization of per pupil expenditures across the state, but it, too, failed, despite a series of appeals through the federal courts. (84) A great deal of interest in the plight of economically distressed districts was generated, however, and this led to a series of modifications in the state formula for funding to local districts that materially aided them over the next five years.

The basic profile of the district was one of poverty, low per pupil expenditures, low student achievement with a progressively widening gap in grade equivalency scores as measured by standardized testing instruments, high dropout rates, and high in-grade retention at the middle and high schools. This, then, represented the social and educational environment into which the Edgewood School Plan was introduced during the summer of 1972.

During the five years of the project's life, some compositional changes occurred in the district. By 1977, the ethnic group distribution had become 92% Mexican American, 4% Black, and 4% Anglo and other. The total school enrollment had declined, as in most other districts in Bexar County, and numbered about 21,000. The proportion of minority teachers had risen considerably; 1% Asian American, 47% Mexican American, and 12% Black for a total of 60% minority to 40% Anglo and other non-Hispanic Caucasians. The instructional aides were almost entirely from minority groups: 95% Hispanic, 4% Black, and .2% (1 person) American Indian. The growth in minority administrative composition was also large, changing from 70% Anglo in 1971 to a 1977 composition of 58% Mexican American, 11% Black, and 2% Asian American, leaving only 29% in the Anglo category. (43)

Changing residential patterns in the San Antonio area, the growth of some of the suburban school districts, teacher retirements from the early

rapid growth of Edgewood during and just after World War II, and a somewhat lower salary scale in Edgewood, brought about rather substantial staff changes during the period. Two superintendents, three ESP directors, and different principals in all but one of the ESP schools were examples. Teacher changes were also frequent in some of the schools with a 90% turnover rate in one elementary school but only 12% in another during the five years.

While the school program frequently was described as being "very traditional" up to 1972, many modifications, innovations, and experiments were chronicled during 1972-1977. The offerings in vocational education were nearly tripled; bilingual education, utilized in only a few pilot classrooms through the joint efforts of the Model Cities Program and the Southwest Educational Development Laboratory, was available in kindergarten through third grade by 1977*; remedial instruction was implemented to at least some degree throughout the system; and projects in individualized instruction, peer tutoring, modular learning packages, contracted learning, and various other innovations were experienced in several sites. (55)

The district, when the experimental program began, was already offering some special opportunities to dropouts and potential dropouts, especially its night high school and the general equivalency diploma program in conjunction with the Bexar County School Superintendent's office. Subsequently, the district added a special volunteer program for pregnant girls. An alternative high school, co-sponsored by ESP and several other agencies, was a further addition to this program. (55)

The Edgewood Experimental Schools Program

The Edgewood Independent School District, under National Institute of Education funding as an experimental schools project, undertook modification of its educational system in order to increase the learning of its largely Mexican American student population. Changes in community participation, administration, curricula, and methodologies were proposed. During the first year of the project, 1972-1973, the district established an intervention agency, first named the Experimental Schools Project and later called the Edgewood School Plan (ESP). Six schools - four elementary, one middle, and one secondary - were chosen to participate in the program and were developed into a mini-system under an associate superintendent for the experimental program.

The basic project document, Final Plan: Experimental Schools Project (36), outlined the needs of the students, emphasizing a series of incompatibilities between the traditional school system and the needs and characteristics of the students. The overall goal stated that the project was

*Early in the period, the state developed a mandatory program in bilingual education in districts with twenty or more students in any grade whose dominant language was not English. (78)

to provide students with an education that focused on developing and maximizing their intellectual and social potential through educational changes and cultural reinforcement. Eight subgoals were listed:

1. To assist the student in determining his capabilities and limitations.
2. To assist the student in recognizing the worth of others, their contributions to humanity, and their problems.
3. To assist the student in recognizing and assuming responsibilities to himself, his community, his peers, his employer.
4. To assist the student in developing basic academic skills.
5. To provide the student with a broad range of experiences upon which he will draw in determining his personal and career objectives.
6. To provide the student with factual information about his cultural heritage to increase his self awareness.
7. To develop rising aspirations in students by providing success models.
8. To provide an educational program that reflects the student's cultural, language, and economic characteristics, and is compatible with his learning style.

The theory of incompatibilities was expanded in later publications (5, 6) but followed the basic pattern established by Tannenbaum (77) in 1954: the system must be brought to reflect the reality of the clients if comprehensive and permanent changes were to be brought about.

The construct of educational change was one of the most critical dimensions of the Edgewood School Plan. Educational change was seen as a deliberate and systematic process intended to produce affective, behavioral, and cognitive student improvement, using program treatments that in some way departed from conventional school district practices.

The document named the six specific schools to take part in the Edgewood experimental schools program. There were 5,367 students in the six schools in 1972. Over ninety-six percent of these was Mexican American, three percent Black, and less than one percent other, including Anglos. The schools had a total of 221 teachers with a teacher-student ratio of 1:24.*

The Final Plan provided for an administrative unit to facilitate the conduct of the program. The associate superintendent of the project, also called the director, provided the general management function alone during the first three years and an assistant was added in the fourth year. Accounting personnel were included to handle the fiscal affairs.

Each of the schools was administered by a principal and, in addition, an assistant was provided. The principals' roles were largely traditional at the beginning of the program, including duties and responsibilities

*Ratio calculated on average daily attendance, not gross enrollment. The ratio did not change appreciably during the five years.

to the general administrative functioning of the district as well as those specifically called for under the experimental schools program. In 1974, the Edgewood School Plan added a dimension to the principal role, that of instructional leader. Some counseling personnel were provided to supplement those already existing in some of the plants, primarily in the middle and secondary schools.

Six major components were devised to implement the program. Within these, at various times, committees were set up to study certain problems and propose solutions to them. Often these were composed of staff members from more than one component, especially when the problem required attention from several staff specialists, not always available in any one component. Each component was headed by a director and, during much of the program's life, both central office staff and on site school liaison personnel were provided. Consultants from many institutions were called in on contract as the need arose and funds were made available. The staff totalled 45 early in the first project year and never exceeded that number thereafter. (13, 55)

Staff Development

The staff development component was seen as necessary because "teachers have been trained to work with White students rather than with Mexican Americans and Blacks, many students were failing to learn to read and write and often dropped out of school, the language of the teachers was English and that of the children was 'barrio' Spanish, teachers had not been trained to use the type of curriculum that would be developed, and differentiated staffing patterns would require new role definitions and behaviors for all staff." (36, p. 58) Teacher and paraprofessional workshops were to be conducted by the staff development component to remedy these identified problems. At various times during the five years of federal funding, other components assisted with or carried out staff development, especially curriculum, family services, and internal evaluation. The staff members of the cultural advocacy and services to the handicapped components helped staff development as needed.

Curriculum Development

The rationale provided for this component in the experimental schools project stated: "Typical curriculum has been guilty of two sins: by its exclusivity, it leads to the inference that White, middle class values are the only ones acceptable and by focusing on content oriented pedagogy, students are severely handicapped by their limited experience and language abilities" (36, p. 64). The initial efforts of the component were to highlight social studies, the study of life, as the pivotal point of all learning in the project. Two major criteria were set forth:

1. Teach from a child's own life experiences: require a child to think and reason based on his own past.
2. Use child's own language as a tool to reinforce favorable self concepts and as a realistic point from which to begin language development.

Parents and students were to have a significant relationship to the component through advisory councils. The staff members, with these advisors and other consultants, were to develop scope and sequence for the grade and subject matter areas to be treated with the new curricula. Additionally, state adopted texts and other materials could be used as they fit the objectives of the plan. The component director and curriculum specialists (elementary, middle, and secondary; subject matter as needed) were to develop and implement a grades K-12 curriculum with the assistance of the advisory councils, the cultural advocacy and evaluation components' staff, and other available district personnel.

Handicapped Component

"The present measures utilized to determine whether a child is handicapped or not," according to the funding document, "do not take into consideration the child's cultural, perceptual, language, and economic characteristics." (36, p. 74) The component was therefore charged with the development and implementation of an alternative system of responses for the handicapped children of the project. These included pupil appraisal instruments and systems, training for integrating the handicapped children into the regular program, instruction compatible with the children's characteristics, and especially, individualized instruction. Parents and other community resources were to be utilized in carrying out these assignments.

Five major types of handicapped children were identified for inclusion: mentally retarded, emotionally disturbed, language and/or learning disabilities, pregnant students, and speech handicapped. The component felt that it was "handicapped" by its title and in mid 1973 requested a change to supportive instructional services. (41) That same year the component director asked that the entity be disbanded and its activities assumed by the curriculum component; that was done in January of 1974. (42)

Cultural Advocacy

The preliminary statement for this organization's functions noted that the district had largely ignored the cultural needs of the students. "Students need to feel good about who they are, they need to understand Mexican American history, they need to see people like themselves as success models." (36, p. 82) The coordinators were to be responsible for overseeing the development of culturally accurate curriculum, staff training activities and teaching methods, and for assuring that the activities provided students with positive reinforcement of the heritage and accomplishments of Mexican Americans and Blacks.

As would be expected from this assignment, the component worked in conjunction with the others and, further, conducted some activities of its own. During the planning exercises of 1974-1975, an extensive cultural advocacy committee report was produced (35). Shortly thereafter, however, it was decided that the functions of the component were to be assumed by everyone in all the other components (30). The staff was transferred to other positions and the component, as a separate part of the Edgewood School Plan, ceased to exist.

Family Services

"The family services program will be designed, directed, and staffed by students of the middle and high schools with training and assistance from professional and paraprofessional personnel." (36, p. 86) It was to serve as a laboratory in which students could experience and learn about strategies for change; it was also to assist the students, their families, and others in the community to make better use of services provided by other agencies.

The program was to develop strategies for bringing about parental involvement with the schools and other institutions. The self help approach was to be emphasized and the development, during 1974, of special classes for adults, under the title of the Community Interaction Program (33), and in 1975, of the alternative high school (32), were important modifications engendered through this approach. Opportunities for college credit were organized through classes in the community (37) and the component also facilitated some staff development in university certificate and degree programs.

Evaluation and Pupil Appraisal

This component, generally called Level I, was given two main areas of work: formative evaluation of the project's activities and the development and implementation of better pupil appraisal activities. (36, p. 90) It was further described as a research organization. Originally, the component was to have two divisions, one for the formative evaluation and the other for pupil appraisal activities. Due to budgetary limitations, the staff carried on both functions jointly.

The component did not begin operation until 1973 and the required testing and the needs assessment survey occupied much of its early months. (79) It worked with the other components on several assessment tasks and, of particular interest to the present study, performed some staff development activities through classroom observations and feedback sessions to the ESP staff and to teachers. (13)

Program Expenditures

The experimental program in the Edgewood Independent School District expended approximately four million dollars from the US Office of Education and the National Institute of Education during the five years it operated, plus a small additional amount during the planning period. This sum represented considerably less than was anticipated, about six million dollars. Fiscal conservatism, difficulties in obtaining approval for some of the component activities, and complex budget change procedures were reported to be the causes of the under run. A number of positions were unfilled during various stages of the project's operations and this was particularly noticeable during the last year. In most years, the on site personnel (assistant principals, counselors, implementation coordinators, liaison aides) accounted for the largest item in the expenditures. Test instruments, publications, implementation materials, and computer costs accounted for the greatest proportion of non personnel expenses. (69)

External Evaluation

As prescribed in the experimental schools program regulations, an external evaluation unit was established for the Edgewood project. The activities were contracted to Development Associates, a private company with its headquarters in Washington, DC. An office was established in San Antonio, separately from the facilities of the district. An agreement for the gathering of the data, for cooperation among the testing/evaluating units, and for access to the experimental school data were concluded early in the operation, facilitating the work of the several entities involved.

Development Associates provided three types of expertise in the evaluation of the project: a local staff with the primary responsibility for the conduct of the data gathering, analysis, and interpretation; a technical panel and other outside consultants to provide greater depth in the research methodology; and backup specializations in the Washington, DC, office. (Details concerning these and their involvement are provided in the chapter on methodology.) The local staff varied considerably in number, from two to sixteen, depending upon the intensity of the data collection and analysis. The Level II unit, external evaluation, had two directors during its five years of operation, but the second had served as technical coordinator under the original director for more than two years. The Washington, DC, Development Associates corporate officer in charge of the project remained the same throughout the five years.

All information generated by the external evaluation team was reported directly to the designated project officer in the experimental schools division of the National Institute of Education. Four persons held that post through the five years, with the last one serving as project officer to both the Edgewood experimental schools project and to the external evaluation program. Clearance for release of data and/or publications, except as stipulated in the data gathering agreement, was the exclusive prerogative of the National Institute of Education.

The National Institute of Education/Development Associates contract and its subsequent revisions called for three period reports: first interim (28), second interim (13), and final, the present report and its supplement. In addition, fifteen subject specific reports were specified (see the chapter on methodology and the supplement to this volume) and delivered. External evaluation process documents, including proposals and seminar reports, were also prepared as contracted or negotiated and are cited in the bibliography. Finally, a master data tape, containing all the individual scores and/or standard conversions, together with a data access manual, were also submitted to the National Institute of Education. The computer cards and printouts containing or using the same data will be maintained in the San Antonio office of the company for twelve months after the submission of the present report. Access to either of these requires National Institute of Education approval.

CHAPTER 11: METHODOLOGY

The Edgewood experimental schools project was complex; it encompassed, potentially, every subject taught from kindergarten through twelfth grade, and later, adult and college education were added. Further, the six experimental schools alone contained approximately 6,000 students and large numbers of professional and paraprofessional staff members. The experimental school program also changed substantially during its five years, both in the treatments that were introduced and in the schools and grades where they were conducted.

No simple, static plan, therefore, would have accommodated the evaluation design or methodology. At appropriate times through the external evaluation operations, substantial modifications, further specifications, and additional dimensions of the research were needed. These were prepared and submitted to the National Institute of Education. That organization then subjected them to close scrutiny through committees it set up for that purpose, through technical seminars to address special topics within the proposals, and through continuous monitoring by the project officer. A technical panel, advisory to Level II, was also developed and maintained throughout the evaluation activities. Outside consultants were contracted for specific tasks of review and/or advice when needed. Development Associates, through its headquarters at Washington, DC, also provided review and consultant services to the project as backup to the specializations of the members of the team in its San Antonio, Texas, offices.

Development of the Evaluation Processes

The funding document for the district, Final Plan: Experimental Schools Project (36), outlined the needs for the project, its objectives, and some of the means for attaining these. The original Development Associates proposal (23) recognized that plan as the basis for the external evaluation and designed its Phase I proposal (24) in keeping with that premise. Modifications in the operations of the district program, however, soon became evident and these called for some important changes in the methodologies planned for the measurement of the program's effects. The Phase II (25), III (26), and IV (27) proposals, then, reflected the incorporation of the modifications while retaining the Final Plan as the basic statement of the objectives of the experimental schools program in the Edgewood Independent School District.* The project, too, maintained the Final Plan as its fundamental document throughout its five year life. (29)

*Phase I included September 1972-May 1973; Phase II, June 15, 1973-February 15, 1975; Phase III spanned a 7 month period, February 16 through September 15, 1975. Changing emphasis called for a modification of Phase III; the revision, Phase IV, included the major data collection through September 15, 1976; two subsequent negotiations detailed the reporting to the National Institute of Education and the contract terminated on August 30, 1977.

Evolution of the Evaluation Proposals

The purpose of Phase I was to design an evaluation plan for Phase II. A major activity leading up to the Phase II plan was the preparation of a historical baseline report (65). That document described the social, educational, economic, and political antecedents in the Edgewood Independent School District leading to the funding of the experimental schools program. The second major Phase I task was the formulation of a data gathering agreement (31) that set forth the specific types of collection activities to be conducted by Level II, ESP, and the district pupil appraisal office. It established guidelines and boundaries for these activities. Under the agreement, Level II was to study the six experimental schools and, additionally, collect non-treatment data from four comparison schools (2 elementary, 1 middle, 1 high). The formative role that Level II had performed the first project year, by request of the district and the National Institute of Education, was dropped and the tasks became purely summative oriented.

The Phase II plan was submitted in spring 1973 and detailed the Level II systematic, methodological approach to the documentation and evaluation of the Edgewood School Plan. Four major theoretical constructs were contained in it: educational change, educational compatibility, social context, and impacts. Throughout Phase II, the Level II team examined these constructs to further clarify and specify them with the assistance of district and project personnel and the technical panel to the external evaluation effort. Reports on preliminary findings were submitted in 1974 and 1975.

The Phase III and IV plans were more operational in tone, thus it was decided that the presence of ESP impact would be measured using quantifiable and valid/reliable indicators or scores. A series of indicators bearing on meaningful dimensions, and measured by contacting key reference groups, also would be used. The Level II team therefore identified, in the Phase III plan, three rather than four major theoretical constructs for investigation: educational change, educational compatibility, and impacts. Social context was subsumed under the dimension of educational change. The Phase III document was reviewed by a committee set up by the National Institute of Education and the concerns of that group led to some modifications and greater specification. Phase IV, a subsequent document, primarily provided greater refinement of both data collection and analysis. The sampling procedures were modified, congruent with ESP treatments and Level II resources.

To ensure that the planned methodology was suitable for detecting ESP impact, a wide range of documentation activities was conducted, such as monitoring school board meetings, observing ESP staff planning sessions, and conducting field interviews. These were shared and/or rotated among all Level II staff as circumstances necessitated.

In essence, in all the revision stages, modifications in the Level II research and evaluation activities occurred as ESP made changes in its plan, so that the Level II design could detect these new emphases. The primary objective in the review phase of these evaluation design documents was to maximize the quality of data consonant with Level II resources.

It should also be noted that the staffing needs for this project were complex. A team was brought together representing the academic disciplines of economics, educational psychology, educational administration, social psychology, and other social sciences. Particular staff expertise included: tests and measurement, decision theory and organization, cognitive testing, diagnostic reading, bilingual/multicultural education, computer science, interpersonal relations, staff training, attitude theory and measurement, and curriculum development.

Technical Seminars

In another highly useful approach to designing a sound methodology, Development Associates and the National Institute of Education held four joint seminars during May and June, 1975, to explore ways to increase the productivity of the evaluation. (9) These seminars, with participants from Level II, the National Institute of Education, the Office of Education, and outside consultants, furnished valuable input to the Level II efforts:

- a. Research Alternatives in Determining Non-Statistical Significance (consultants - Dr. William C. Theimer, Jr., Dr. Flavian Udinsky, University of Southern California; Dr. Robert Chin, Boston College). Emphasis was given to the relation between research processes and decision making, and the unintended outcomes of educational innovation. The results of the papers and discussions have particularly influenced the discussions on educational change and compatibility.
- b. Student Tracking, Attrition, and Data Analysis (consultants - Dr. Victor G. Cicirelli, Purdue University; Dr. Donald R. Weidman, the Urban Institute). Ways to maximize longitudinal data on students were explored. The sample sizes and analysis procedures recommended are reflected in the section on student impacts.
- c. Assessment of Internal Evaluation (consultants - Dr. Bernard Haake, Fayetteville-Manlius Schools, New York; Dr. William C. Theimer, Jr., University of Southern California). The functions of an internal evaluation unit, especially its formative role, were reviewed. Suggested methods of researching the process and products of such a unit were incorporated into the educational change section.
- d. Attribution of School Treatment Effects (consultants - Dr. Herbert Walberg, University of Illinois at Chicago Circle; Dr. Donald Nasca, New York State University at Brockport). The seminar efforts were concentrated on the classroom observation instruments and techniques for studying treatment effects. The addition of one instrument, probing students' perceptions of treatments, was recommended and adopted. From a further recommendation, Development Associates acquired the services of three recognized curriculum experts to assist in the assessment

of ESP developed materials. Mercilia X. Toscano (elementary and bilingual education, Southwest Educational Development Laboratory), Dr. Barry B. Thompson (science and mathematics, East Texas State University), Dr. Antonio E. Garcia (social studies, humanities, and secondary language arts, Rio Grande City, Texas, Public Schools) were contracted for this work. Similarly, experienced San Antonio teachers were contracted to conduct instructional methodology monitoring during two periods, including Alice Carrillo, Marietta Rodriguez, and Manette Parker, all with substantial expertise in the needed fields.

Technical Panel and Consultants

Because of the complexity and magnitude of this large scale evaluation project, many of the specializations required could not be provided within the staff. Some of these services, therefore, were provided through a formal advisory committee to Level II, entitled the Technical Panel, whose members were selected on the basis of recognized expertise in the fields held essential to Level II activities. The members were retained on a continuing consultant basis with the understanding of a standing commitment to provide requested assistance and information to Level II staff. Panel members principally addressed themselves to the design and products of Level II efforts; their specific responsibilities included:

- . reviews and critiques of the evaluation designs
- . recommendations on issues or problems in the evaluative strategies
- . advice on recent developments in education research and evaluation
- . proposals for alternative methodologies adaptable to the project
- . reviews and critiques of the Level II product reports

The composition of the original panel included the following specialists:

- . Mr. Vicente Ximenes (Program Administration), University of New Mexico, Albuquerque
- . Dr. Y. Arturo Cabrera (teacher training, education of Mexican Americans), University of Colorado, Boulder
- . Dr. Rodney Skager (educational evaluation, research methodology), University of California at Los Angeles
- . Dr. William C. Theimer, Jr. (educational evaluation, statistics, instrumentation), University of Southern California, Los Angeles

Professional opportunities that precluded such intensive work with an outside organization came to several of the members during the five year period and some changes were therefore necessitated. Other specialists who served in that role were:

- . Dr. William Mangin (anthropology, linguistics), Wellesley College, Massachusetts

- Mrs. Mercilia X. Toscano (bilingual and elementary education), Southwest Educational Development Laboratory, Austin, Texas
- Dr. Barry B. Thompson (curriculum development), Pan American University and later academic vice president of East Texas State University, Commerce
- Dr. Ernest Bernal (educational psychology), University of Texas at San Antonio

Dr. William Theimer, Jr. remained on the panel for the full five years despite a move to the University of the Pacific, Stockton, California.

Two other experts served as technical editors and writers for facets of the work:

- Dr. Helen H. Bernal (curriculum and instruction, bilingual education), Our Lady of the Lake University, San Antonio Texas
- Dr. Victor G. Cielinski (psychometrics, instrumentation), Purdue University, West Lafayette, Indiana

Dr. Robert A. Cervantes, director of the San Antonio office of Development Associates for more than four years, continued in an advisory and editing capacity after he joined the Division of Research and Evaluation of the California State Department of Education at Sacramento.

Mr. Leveo V. Sanchez, president, and Mr. Peter Davis, senior vice president, of the Washington, DC, Headquarters of Development Associates served in dual roles of general supervision and of technical advisers to the external evaluation effort. Similarly, specialists in that office performed editing, writing, and technical assistance tasks with the San Antonio staff, especially Mr. Stanley Lichtenstein (psychometrician), Dr. Milton R. Goldsamt (statistician), Mr. Francis J. Potter (statistical analyst), and Mr. Howard Fleischman (curriculum and instruction).

The San Antonio evaluation team also profited from the advice of the experimental schools program project officers from the National Institute of Education. Two of the officers who served for extended periods, Dr. Ray Coward and Mr. David Mack, were of particular assistance in research design and implementation.

A wide range of specialists, then, contributed importantly to the design of the evaluation of the Edgewood experimental schools program. Their efforts, in conjunction with the cooperation on the data collection of personnel in the Edgewood School Plan and in the district Pupil Appraisal office, and computerization assistance of personnel at St. Mary's University and Trinity University, both in San Antonio, Texas, combined to form a highly sophisticated backup team to the evaluation personnel in the San Antonio office of Development Associates.

Specification of the Evaluation Task

The evaluation of the Edgewood School Plan was keyed to two major constructs. The National Institute of Education, Office of Experimental Schools, announced as one of its high priorities, an investigation of the construct of "holistic" or "comprehensive" change. This construct implied the involvement of the total school program of the target population and the implementation of a systematic thrust, rather than a series of piecemeal changes.

The other construct of the external evaluation was that found in the Final Plan in the form of the theory of incompatibilities. The Final Plan was Edgewood's interpretation and theoretical application of the construct of comprehensive change to the local situation. That is, the entire system of schooling was to be changed in order to eliminate perceived incompatibilities or conflicts between the traditional White, middle class educational system and the characteristics of the Mexican American learner. In order to deal with these two elemental constructs, the external evaluation team established four principal dimensions of analysis: educational change, educational compatibility, social context, and student impact.

These principal dimensions of analysis were operationally defined as:

Educational Change was a deliberate and systematic process intended to produce improvements in students' affective, behavioral, and cognitive skills using program treatments that in some way departed from conventional Edgewood practices.

Educational Compatibility amplified the uniqueness of program treatments referred to under the category of educational change. This uniqueness was based on three major facets that characterized the actual operation of the treatment variables:

1. utilizing the students' preferred languages as the primary media of teaching
2. incorporating the life experiences and culture of the child in the curriculum
3. recognition of the individual abilities and needs of pupils through the use of individualized instruction.

These three facets were examined as they occurred in curricular materials and in their classroom implementation.

Social Context referred to selected external intervening variables which were distinct from but impinged on the operational activities of the Edgewood School Plan. Some of these variables were expected to influence ESP program treatments and outcomes, while others were thought to suggest general developments that might help explain impact.

Student Impacts consisted of three broad assessment areas:

- . behavioral: in-grade retention and dropout rates, absenteeism,

- . affective: self concept, motivation, and attitudes,
- . cognitive: skills in reading, language, mathematics, and study habits.

All three were specified by ESP as target areas for the activities to be undertaken.

These four dimensions of analysis together generated an overall evaluation hypothesis and lent themselves to incorporation into a general evaluation design. The overall hypothesis was stated as follows:

- H: The Edgewood School Plan would bring about changes (either activity specific or comprehensive) intended to make the educational system in the designated schools more compatible with learning and these changes will have a measurable impact on students.

This hypothesis was supplemented by the notion that changes occurring in the broader social context of the project would influence it and have an impact on the project treatments.

In general, the Level II strategy in approaching the ESP evaluation task was to:

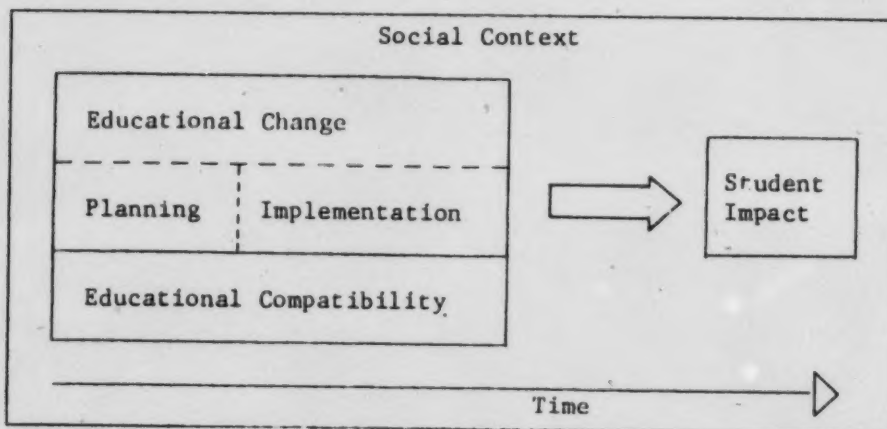
- . utilize flexible, empirical, "grounded" procedures and policies, which permitted a great deal of latitude in responding to whatever spontaneous alterations occurred within ESP over the duration of the study, and
- . clearly specify the presence of hypothesized antecedent variables, and by focusing on impact, measure both the consequences of the antecedents and organismic or contextual variables.

This approach also made it possible to measure some effects of the antecedent variables on the consequences.

Conceptual Framework for the Level II Evaluation

The four designated dimensions of analysis were incorporated with a conceptual framework which underwent considerable revision after initial development. An early version of the framework is presented as Figure 1 and clearly indicates that in casting the dimensions of analysis into an evaluation design, educational change and educational compatibility were considered as project means; treatments were (in terms of research design) independent variables. Student impact was considered the project effects, or the dependent variables, representing the completion of typical input-output designs. The dimension of social context was viewed as consisting of a number of intervening variables. Process events were recognized to occur over time, and as relevant, were subsumed under their particular dimensions of analysis. Diagrammatically, the evaluation design appeared as shown in Figure 1.

Figure 1: Level II Evaluation Conceptual Framework

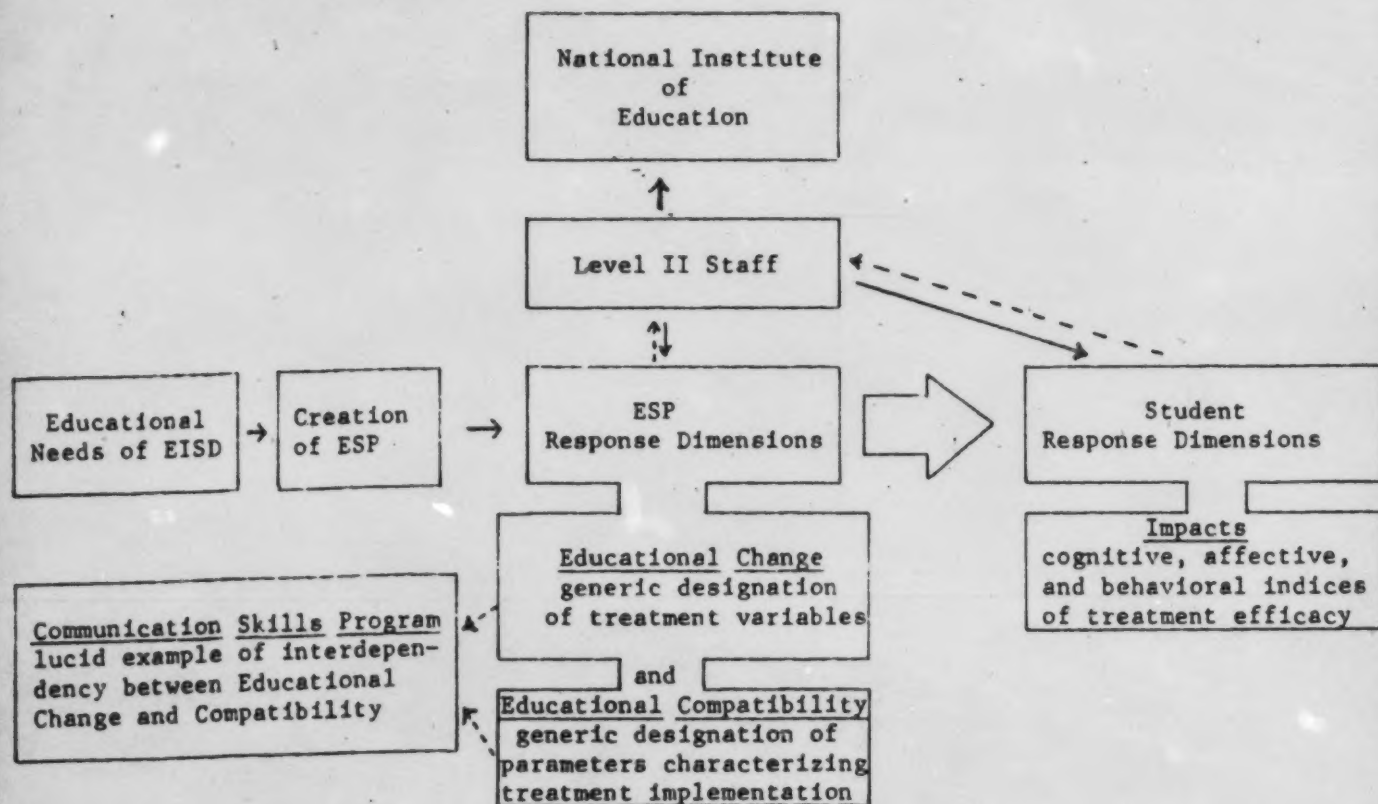


The present version integrates NIE, ESP, and Level II roles and functions and is graphically presented in Figure 2. The major research dimensions, as well as the interrelationships among the organizations, are included.

The model components labeled "Educational Needs of EISD" and "Creation of ESP" provided a historical context for the remaining components. In an associative fashion, EISD needs led to ESP creation; ESP in turn, generated responses to the EISD needs (ESP Response Dimensions). The model components arranged vertically, below ESP Response Dimensions, defined the nature of the response (Educational Change and Educational Compatibility were not conceived as discrete and separate entities but established closely related conceptualizations. Their interface was represented by the interconnection between these two. The component "Communication Skills Program," arranged horizontally to Change and Compatibility, also emphasized the integrative aspect of these two components. One further associative relationship was suggested, the flow from the ESP Response Dimension to the Student Response Dimension. The model component arranged vertically below this latter was labeled "Impacts" and defined the nature of the Student Response Dimension. The associative relationship suggested between the ESP and Student Response Dimensions was analogous to an antecedent-consequent relationship.

The Level II staff component was ordered vertically above the previously discussed components. This emphasized the evaluative function of Level II within the model. The solid arrows from Level II to ESP Response Dimensions and Student Response Dimensions pointed out the two major focal points of the Level II evaluative activity. The broken arrows from the two Response components to Level II indicated the flow of data into Level II as a function of staff activity. The remaining component was NIE and the solid arrow from Level II staff to NIE denoted the flow of proposal and report information. Thus, this conceptual framework became the springboard for developing an objective and sound methodology, which also was sufficiently flexible to respond to alterations within the Edgewood experimental schools project.

Figure 2: A Conceptual Model Illustrating the ESP and Level II Functions



To sum up, and thus put the evaluation design in perspective, the Edgewood School Plan of the Edgewood Independent School District represented an attempt to produce educational compatibility to meet the needs of its predominantly Mexican American student body, utilizing a comprehensive change strategy. A quasi-experimental design was used to detect the impact of ESP operations. This was more appropriate than a classic experimental design, since only designated schools with the district were included in the ESP program and within each of these schools, students were not randomly assigned to receive ESP.

Furthermore, this design was intended to be a comprehensive evaluation of the ESP program in a dynamic setting. The design was chosen to capture the numerous project treatments attempted, along with influences external to but impinging upon the project, occurring simultaneously. Such a design was considered more appropriate than one used to assess a "laboratory experiment" in which the total environment would remain constant and one variable at a time would be altered in order to determine its effect or impact on the target population. The design also recognized that the Edgewood School Plan treatments did not occur in experimental isolation. Movement of pupils and teachers within and in and out of treatments occurred. Treatments were begun, at times dropped, and sometimes were re-instituted. Furthermore, other district, state, and federal programs operated in or impinged upon the experimental schools. These conditions imposed the requirement of closely monitoring the conduct of many influences on the population. Thus, using a quasi-experimental approach, measuring events over time (the duration of ESP operations), and using comparison groups, permitted some control over relevant variables and the screening out of some irrelevant ones, the latter as potential explanations of changes in student score levels.

Organismic Relationship of Dimensions of Analysis

Within the framework of this design, the four dimensions of analysis (educational change, educational compatibility, social context, and student impact) formed the variables for the investigation. Their organismic relationship is depicted in Figure 3. As that hypothesized relationship indicates, social context factors (such as EISD board policies related to ESP and trends in school attendance) acted as intervening variables, and were considered to directly affect educational change, the independent variable, and indirectly affect impact, the dependent variable. Compatibility was seen by the district as a necessary ingredient of educational change. That is to say, if change were to be effective, it would have to "fit" the particular needs of the population. Although not mutually exclusive, changes were viewed in two forms, each representing a component or activity of ESP:

. Pedagogical

(examples)

- best paced mathematics program
- bilingual oral language kindergarten kit

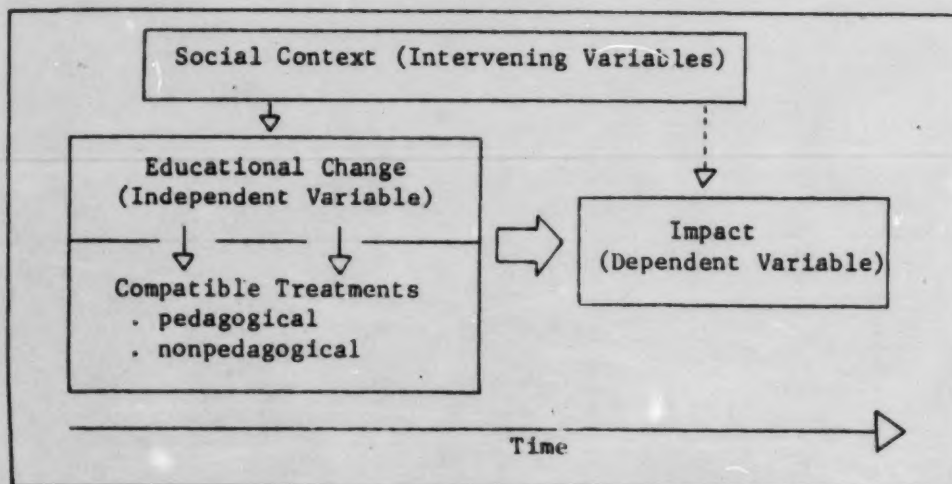
- Nonpedagogical
- (examples)
 - drug education seminars
 - truancy reduction program

Most of the changes, particularly those that were pedagogical, were filtered through teachers. It was postulated by the program designers, then, that they, too, would have to be compatible if the changes were to have the greatest possible effect. Theoretically, at least, teachers would:

- Be Mexican American or be empathetic with Mexican Americans;
- Hold values similar to those of the students;
- Express attitudes favorable to optimal student learning.

Viewed from this perspective, teachers also became a target population for possible treatment. Any change that would make their work better, i.e., more effective, would necessarily make them more compatible. The two important areas affecting the improvement of teachers were researched as school climate and control.

Figure 3: Organismic Relationship of the Dimensions of Analysis



The focus of the dimension of educational change via compatibility reflected the clear specification of the operation of hypothesized antecedent variables. Focus on impact permitted measurement of results as consequences of hypothesized antecedents. Phrased another way, the research set out to discover the cause-effect linkages between treatments and accomplishments.

Data Sources and Collection Procedures

To assess treatment impact over the five year duration of ESP, data were obtained each year as a pre-treatment measure of activities, and each succeeding year as a post-treatment measure. Data were collected most years from six major reference groups: students, teachers, principals, ESP central staff, EISD Board of Education members, and EISD administrators. A sample of parents was studied one year but dropped from the evaluation population thereafter.*

Six schools in Edgewood were designated to participate in ESP: four elementary, one middle, and one high school. For purposes of the Level II research, these schools were referred to as ESP, experimental, or treatment schools. Wherever possible, comparison reference groups were used, which helped to imply cause and effect relationships. In addition to tracking treatments and impact in the six ESP treatment schools, the impact data from students in four comparison schools were collected. If a change occurred in the data gathered in the treatment schools and no change occurred in the same data from the comparison schools, it was deemed plausible that the changes could be associated with project treatment. The comparison schools were selected from those remaining in the Edgewood district most like the ESP schools in student population, socioeconomic characteristics, pupil and teacher ethnicity. Two elementary, one middle, and one high school were chosen as comparison sites.

Because of the limited time in which to choose the schools, and the limited amount of data available, a partially subjective selection process was used. First, at each level (elementary, middle, secondary), principals were asked by Level II team members to name the elementary school they considered most comparable to the ESP schools with respect to socioeconomic locale, and pupil and teacher ethnicity. The principals agreed on their nominations. Central administrators, who had worked in the district for a number of years, confirmed the principals' nominations. The data available were examined and as Table 1 illustrates, the ESP comparison schools were similar with respect to pupil enrollment, pupil/teacher ratio, ethnicity of pupils, ethnicity of faculty, and economic characteristics.

*Additionally, by agreement, the data were furnished to the Family Services component for their use and the results were not formally reported by Level II.

Table 1: ESP and Comparison Schools' Characteristics (1972-1973)¹

Characteristics	ESP Elementary Schools	Comparison Elementary Schools	ESP Middle School**	Comparison Middle School	ESP High School	Comparison High School
A. Average Enrollment per school	704	759	795	800	1,756	1,759
B. Pupil/Teacher ratio	26/1	25/1	19/1	21/1	24/1	24/1
C. Ethnicity of pupils						
1. % Mexican American	98.6	98.9	99.0	98.9	92.4	89.4
2. % Anglo	0.7	0.6	0.2	0.5	0.6	0.6
3. % Black	0.6	0.4	0.8	0.5	6.7	9.9
4. % Other	0.1	0.1	0	0.1	0.3	0.1
D. Ethnicity of Faculty						
1. % Mexican American	42.1	47.5	40.5	31.6	36.1	25.7
2. % Anglo	45.8	47.5	54.8	52.6	56.9	54.0
3. % Black	12.1	3.3	4.7	15.8	5.6	20.3
4. % Other	0	1.7	-	-	1.4	-
E. Economic Character- istics (1971-1972 Figures)						
1. Percent of students from low income families*	58.8	42.5	-	50.4	14.8	40.2
2. Percent of students from families on welfare	16.3	30.5	-	13.9	23.0	7.4

¹These figures are based on a survey conducted by the Edgewood district in October of 1972, and from the EISD Title I evaluator data, 1973.

*Low income as defined by Housing and Urban Development - \$3,000 or less for a family of four.

**There were no figures available on economic characteristics for the middle school in 1972-1973.

Scope of the Evaluations

In response to the needs of the prescribed National Institute of Education external evaluation plans, Development Associates prepared and submitted eighteen formal reports, plus the present document and its supplement of the abstracts of the formal reports. Those documents, in the order of their submission to the National Institute of Education, are included in Table 2.

Table 2: Level II Formal Evaluation Reports Submitted to the National Institute of Education, Author(s), and Date

Abstract Section in Vol. II	Report Title, Author(s), Date	Page No. in Vol. II
I	A historical baseline of the Edgewood Independent School District. Munoz, Adolfo & Jones, Earl. November 20, 1972	1
II	First interim report on the Edgewood School Plan. Development Associates. March 12, 1974.	3
III	A multidimensional study of self concept of Mexican American students. Sharp, Michael; Cervantes, Robert A. & Jones, Earl. December 1975.	12
IV	Second interim report on the Edgewood School Plan. Cervantes, Robert A. & Jones, Earl. January 1976.	13
V	A comparative analysis of English and Spanish reading performance of Mexican American students. Cervantes, Robert A. & Bernal, Helen H. June 1976.	29
VI	An instrumentation study of the Purdue Social Attitude Scales for Primary Children (English and Spanish versions). Jones, Earl. October 1976.	31
VII	Social attitudes of South Texas primary students. Jones, Earl. November 1976.	33
VIII	Locus of control and achievement of Mexican American pupils. Cervantes, Robert A. & Jones, Earl. December 1976.	35
IX	Language Dominance test development and instructional placement: a case study. Cervantes, Robert A.; Theimer, William C. Jr. & Jones, Earl. December 1976.	36
X	Psychosocial growth and academic achievement of Mexican American students. Cervantes, Robert A. & Bernal, Helen H. March 1977.	38
XI	Academic achievement of Mexican American students: the Edgewood School Plan. Welch, Richard O. April 1977.	41
XII	An instrumentation study of the Self-Concept and Motivation Inventory (English and Spanish versions). Jones, Earl. June 1977.	44
XIII	The explanation of educational change: case studies in the Edgewood School Plan. Bernal, Helen H.; Jones, Earl & Cervantes, Robert A. June 1977	49

...continued

Table continued...

XIV	Teacher classroom behaviors. Potter, Francis J.; Jones, Earl & Cervantes, Robert A. June 1977	52
XV	The communications skills program in the Edgewood School Plan: a case study. Cervantes, Robert A. & Jones, Earl. June 1977.	53
XVI	Summary review of revenues and expenditures for the Edgewood Independent School District and the Edgewood School Plan. Potter, Francis J. July 1977.	56
XVII	Curriculum and instruction in the Edgewood School Plan. Jones, Earl. June 1977.	57
XVIII	Formative evaluation in the Edgewood School Plan. Theimer, William C. Jr. August 1977.	62

Six formal proposals were generated: the original Development Associates response (23) to the US Office of Education RFP (82), the four phase refinements (24, 25, 26, 27), and a special proposal on the study of curriculum and instruction in the Edgewood School Plan (52). Two smaller technical treatises were also submitted, one in response to the technical panel concerns for biases in achievement testing (7) and another comparing the older Q form of the CTBS with its newer expanded version (87). Since both of these latter reports were subsumed into later reports and proposals, they are not listed as formal reports.

Each of the participants in the joint Development Associates/National Institute of Education seminars held in 1975 submitted a position paper. These were combined into a single volume (9), and since their essential points were combined into the Phase IV and curriculum study proposals, were not listed separately. A brief report on the study of affective characteristics (15) was also presented orally and in written form to the interested evaluators at the 1974 American Education Research Association meetings in Albuquerque, New Mexico.

A large number of independent studies examining some phase of the Edgewood experimental schools program were conducted by graduate students of Trinity University, Our Lady of the Lake University, Antioch College, University of Texas at San Antonio, University of Texas at Austin, the Union Graduate School, and Texas A&M University. While these were not done under the aegis of the Development Associates research effort, the facilitation of their data (the listing is too numerous for inclusion here but an examination of the appropriately credited citations in the bibliographies indicate their scope) greatly enhanced the information Level II was able to bring to bear on the evaluations.

The full scope of Level II's evaluation design orientation and data collection efforts, in the formal reports, can best be appreciated by examining Table 3, which displays the:

- . dimensions of analysis,
- . study variables tapping these dimensions,

- instrumentation (standardized and especially developed),
- reference groups and data sources,
- analytic time frames (cross sectional, longitudinal, or both), used to investigate the dimensions and study variables, and
- the section and page number in the supplement to this final report where the abstracts can be located for further specification.

Copies of all instrumentation used in the evaluations, with the exception of the McGraw-Hill (21) CTBS/Q and TOBE (copying, even for research reports, is prohibited), are included in the separate reports and proposals dealing with them. Additionally, the data on reliability, validity, and the development processes of the instruments are also described in the appropriate documents, and therefore not repeated in this present report. To provide easy access, citations on the instruments or their use in other pertinent settings are included in the bibliographies of the separate documents.

Table 3: Evaluation Design and Instrumentation Data Matrix

Dimensions of Analysis	Study Variables	Instrumentation (standardized forms referenced later)	Reference Groups/ Data Sources	Analytic Time Frame	Supplement Section
Educational Change (including process events)	ESP components of family services, curriculum, staff development, and internal evaluation: program perceptions & extent	Data recording forms	Component records, reports, and memos	Cross sectional	II, IV
		Interviews	ESP component staff	Cross sectional	II, IV
		Questionnaires	Students	Cross sectional	II, IV
	Perceptions of instructional approach dimensions and implementation	Likert type rating scale & questionnaire	Teachers in ESP and comparison schools ESP staff members, principals & teachers	Cross Sectional	II, IV XV
	Formative activities in implementation of ESP	Interviews, observation recording forms, document abstracting forms	Level I component of ESP; staff; on site observations; intensive review of publications	Longitudinal	XVIII
	Appraisal of curricular materials, staff development, instructional aspects of ESP	Curricular materials examination by experts; information recording forms; survey questionnaires M/OSCAR; LEI	Curriculum materials developed by ESP staff; teachers in ESP schools; ESP staff	Longitudinal	XVII
	ESP implementation in classroom settings; emotional climate, teacher interpersonal style, language arts skills domain, oral & written language usage, dimensions of schooling	OSCAR 2a; M/OSCAR	Teachers and classroom settings at elementary, middle, & high schools	Cross Sectional	XIV

Table 3 continued...

	adequacy of an ESP developed language dominance instrument	Documentation of development process, instrument review by experts, analyses of psychometric adequacy and language classification coincidence with JLDI; data recording forms	Relevant ESP documents, pupil placement into instructional modules, teachers	Cross Sectional	IX
	Reading performance of bilingual Mexican American students on parallel Spanish-English reading tests	GTA Reading; Prueba de Lectura; CTBS/Q Reading, Vocabulary Comprehension subtests	Grades 3,5,8 in two different bilingual programs	Cross Sectional	V
	Conditions, decision making, effect factors affecting change in, and support of, the Best Paced Math, Cultural Advocacy, and External High School	Questionnaires measuring perceptions of change in each treatment	Management (board, administration, ESP staff, principals); operations (teachers)	Longitudinal	XIV
Educational Compatibility	School organizational climate (group characteristics or teacher behavior indices; leader or principal behavior indices)	OCDQ	Teachers in ESP & comparison schools	Cross Sectional & Longitudinal	II, IV
	Teacher perceived patterns of pupil control; school environment in relation to individualized instruction	TPPC	Teachers in ESP & comparison schools	Cross Sectional & Longitudinal	II, IV

Table 3 continued...

Social Context	Teaching Ambience (teacher perceptions of causal factors in student absenteeism, teaching environment, teaching technique utilization; for ESP sites - teacher per- ceptions & involvement with ESP)	Questionnaire	Teachers in ESP & comparison schools	Cross Sectional	II, IV
	Teacher turnover: counts & reasons for resignation	Personnel Turnover Record sheet	ESP and comparison schools	Cross Section- al & Longitud- inal	II, IV
	Teacher-Student Values	Likert type sum- mated rating scale	Teachers and sample of students in the treatment middle school	Cross Sectional	IV
	Locus of Control; teacher emotional climate & classroom interpersonal style behavior	Rotter Locus of Con- trol Scale; M/OSCAR; teacher characteris- tics form		Longitudinal	IV
	Perceptions & under- standings of ESP; re- lations with ESP staff	Interviews Observations Recording forms	EISD Board of Educa- tion members EISD Board meetings Review of Board meet- ing agenda; Board election issues	Cross Sectional Cross Sectional Cross Sectional	II, IV II, IV II, IV
	Registered voters; votes cast; election issues	Recording forms	Board electoral results	Cross Sectional I, IV & Longitudinal	

Table 3 continued...

	Sources of EISD funds; expenditures, total & by component	Statistical analysis sheets Interviews	EISD budgets & financial reports; EISD central staff	Cross Sectional & Longitudinal	II, IV, XVI
	Parental attitudes toward ESP, EISD teachers, ESP staff	Parent Questionnaire	Parents of ESP and comparison students	Cross Sectional	II
Student	<u>Behavioral</u> : Attendance, in-grade retention, transiency, and drop-out rates	Statistical analysis sheets	ESP and comparison school data from EISD administration and/or principals' term reports	Cross Sectional & Longitudinal	II, IV
	<u>Affective</u> : .Self concept & motivation (in areas related to school); and achievement	SCAMIn, TOBE, CTBS/Q	Students in ESP and comparison elementary & high schools; particular grade levels and cohorts	Longitudinal	II, III, IV, X, XII
	. Social Attitudes	PSAS	ESP & comparison students in grades K-3	Longitudinal	II, XI, XII
	. Attitudes toward school environment (achievement, inclusion & affiliation)	SBDQ	Students in ESP and comparison elementary & high schools	Longitudinal	II, IV
	. Locus of control & achievement	LC, CTBS/Q	Students in ESP & comparison schools (grades 3,7,8)	Cross Sectional	VIII
	<u>Cognitive</u> : .Math, language, science & social studies	TOBE	Students in ESP and comparison schools	Longitudinal	II, IV, XI
	. Reading, language, arithmetic & study skills	CTBS/Q	Students in ESP and comparison schools	Longitudinal	II, IV, XI

Sampling Procedures

The sampling design used in the evaluation studies was predicated on meeting four data collection goals:

1. to obtain a maximum number of measures on any particular target group, given available time and resources;
2. to maximize the tracking of a target group over time with the same measures;
3. to obtain optimum representation of students in various grades of ESP schools; and
4. to obtain a maximum number of comparisons between groups affected by ESP and those not affected by ESP.

Changing ESP foci brought corresponding changes in the Level II samples to assure the greatest possible coverage of the activities and their outcomes. However, Level II maintained a high percentage sample in order to increase the generalization of the results to the Edgewood population, specifically, and to the degree possible, to Mexican American students in general. A matrix sampling design was followed throughout the four years of investigation to assure the attainment of these goals.

Students in a sample of five grade levels in the ESP and comparison schools were tested the first two years of the project and the sample was increased during the third year to include all grades from kindergarten through twelve. For the fourth project year, the sample was reduced to include a small group from one grade level and all students in six other grades in the ESP and comparison schools.

The first year, questionnaires were administered to all designated treatment teachers and an equal group of comparison teachers to gather baseline data. During the second and third project years, treatments were introduced into grades K, 1, 2, 7, 8, and 9, and Level II interviewed 30% of the treatment teachers in these grades plus an equal number in the comparison schools. The treatment grades were expanded in the fourth year to include K through 12. Level II also interviewed or administered instruments to approximately 30% of the teachers in these grades each of these years, thus maintaining a high teacher-student proportion.

In addition to interviewing and administering instruments to teachers, Level II also observed them in the classroom twice a year on a sample basis. Treatment monitoring, a separate observation, covered more than half of these same teachers. These observations were distributed throughout the ESP and comparison schools and across the grades.

The sampling plan for the other reference groups essentially was the same as that carried out in the initial year of ESP monitoring except that the number of people in some groups was modified to reflect changing staff patterns. This plan is summarized as follows:

- . Principals: all principals of the ESP and comparison schools were interviewed each year.
- . ESP Central Staff: all directors of components and other key staff members were interviewed each year.
- . EISD Administrators: all key administrators including the superintendent, associate superintendents, the chief testing officer, and federal program coordinators were interviewed each year.
- . Parents: parents participating in ESP activities were interviewed in various selected samples depending upon their inclusion in activities. Five percent of the parents of students in each grade who took the SCAM in ESP and comparison schools each year were sampled. 121 parents were interviewed in the first project year.

As in the initial years of the project, Level II used a combination of standardized and locally developed instruments to measure the important variables associated with the reference groups. The standardized instruments were employed to gather data primarily from the largest reference group, the students. To maintain continuity with the baseline data, the same instruments that measured the student affective, behavioral, and cognitive variables in the first three years were employed to assess their progress during the last two years.

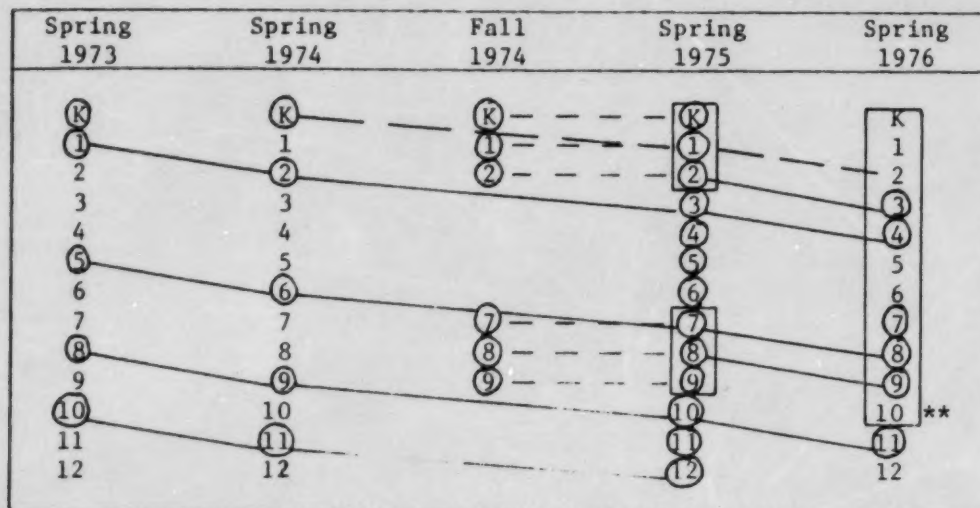
In 1972, Level II proposed a five* year longitudinal tracking design for collecting data on students. This original tracking plan, illustrated in Figure 4, was created for the purpose of evaluating the impact of treatments introduced at various school levels over the maximum amount of time that the project period might allow. During the first project year, because of the initiation stage of ESP treatment specification and implementation, Level II tested all students in grades K, 1, 5, 8, and 10 in the ESP and comparison schools. The rationale and justification for selecting these grades were discussed in the first interim report (II). In keeping with the concept of longitudinal tracking of the same students over time, adopted in year one, students in grades K, 2, 6, 9 and 11 were tested in the ESP and comparison schools in the second year of the project.

During the third project year, ESP treatments were designed to cover all students in grades K, 1, and 2, one-half the students in 7 and 8, and 150 students in 9, and to expand the treatments to encompass grades K through 12 by 1976. In order to collect the baseline data needed on students in these grades, it was necessary for Level II to conduct supplemental testing in the fall of 1974. In the spring of 1975, testing covered all grades, K through 12, in the treatment and comparison schools.

*Due to funding limitations of the National Institute of Education, no student data were collected in 1977.

This provided both post treatment test data for the second year treatment grades and pre treatment data for grades to be added to the ESP treatment program the following year. This procedure also permitted the completion of the four year tracking design presented in Figure 4.

Figure 4: Level II Student Sampling Plan - Four Project Years*



*Circled grades were tested in indicated years. Grades included in boxes were the proposed ESP treatment grades. Horizontal and diagonal lines indicate tracking.

**Only 150 9th graders were included in the ESP treatment grades in 1974-1975 and are included as 10th graders in 1975-1976. All 9th graders were in treatment in 1975-1976. All mathematics classes at high school were treatment in 1974-1975 and 1975-1976.

The criteria for selection of grades to be sampled included the following:

- The grades tested included those for which a maximum amount of data existed from previous years.
- The grades selected included as many treatment grades as possible.
- The grades chosen minimized the loss of data due to test form variance among grades, student dropouts, and student transfers.

The overall design, with the sample percentage modifications adopted in the joint Development Associates/National Institute of Education seminars in spring 1975, was implemented and accounted for every grade receiving treatment as specified by the Edgewood School Plan.

The actual sample sizes varied considerably over the four year period. A portion of that variation was due to the demands of the particular investigation being conducted and the scope of the experimental treatments. The major criteria for selecting the sample sizes were:

- number of students actually being treated by ESP
- special instrument requirements such as bilingualism
- statistical analysis requirements
- status of previously conducted validity and reliability studies on the instrument

Each of the reports submitted to the National Institute of Education contained an exact accounting of the samples used in the investigations. The established criteria were met in almost every case and the exceptions were either dropped from the presentation, with an accompanying explanation, or were carefully described as tentative data. Because of the enormous variety of instruments, grades administered, and years of application, the entire gamut of samples is not reproduced herein and the reader is invited to consult the appropriate section in the reports. As examples, however, the specialized study of Spanish and English reading performance, which depended upon matched samples, utilized about 100 students, while the Self-Concept and Motivation Inventory study in 1975 encompassed more than 9,000 students. Typically, the samples numbered between 1,000 and 3,000.

In no case did the sample equal the enrollment reported by the district despite stringent efforts to provide a subsequent opportunity for students who were absent or for some other reason could not complete a test on the date scheduled. The major sources of losses were:

- extended absenteeism
- transfers
- dropouts
- prolonged special activities that precluded the student's presence for testing

The samples were designed with an extra margin for such occurrences and the resultant numbers were adequate for all of the cross sectional analyses.

The longitudinal studies presented additional problems that at times seriously reduced the samples and made the tracking of students an arduous, and occasionally, an unsuccessful task. Twice during the four years, the feeder systems of grade schools to middle schools to high schools were modified. Further, in every case, the geographical location of the student's dwellings was the criterion for determination of school enrollment and some portions of a school drawing area were assigned to schools other than those designated as experimental or comparison. Additionally, absenteeism, transfers, dropouts, in-grade retentions, and involvement in out-of-classroom activities were more serious for the longitudinal than the cross sectional studies and in two important instances, the sample size of a grade included in a longitudinal study caused it to be dropped from analysis. In those cases, the statistical requirements and limitations on generalizability of the results prohibited the inclusion of the data.

The analyses of teacher data, too, were sometimes affected by outside forces. A high teacher turnover rate was experienced in some schools, causing the research to be focused on a series of cross sectional analyses and one short (three semesters) longitudinal study. A considerable turnover rate was also found among the principals and ESP central staff

members, again precluding some types of longitudinal analyses. In another case, the educational change study, the questionnaire return rates from some of the management positions was too small to allow analysis by position, thus the overall management group was the unit of analysis.

Despite these problems, the sample sizes in the several investigations were adequate to their design and were generally much higher than those reported in much of the evaluation literature. The intensive planning efforts of the Development Associates staff members and their intimate knowledge of the conditions of the schools under study, made possible an unusually strong, representative sampling, and this in turn, lent credibility to the results obtained.

Instrumentation

The Level II team, during the early years of the project, studied a wide variety of instrumentation that might meet the needs of the investigation. Concerns for replicability of the studies, reliability and validity of the results, and, most of all, accurate testing of the elements within the experimental program demanded intensive reviews by the investigators and in conjunction with the technical panel, other consultants, the Edgewood pupil appraisal office, with final reviews by the National Institute of Education.

Standardized instrumentation was sought for every possible task. Problems with intended audiences, grades or ages of the target population, and the inclusion of concepts or items inappropriate to the Edgewood situation caused some to be eliminated. When at all possible, the selection of instruments favored those that had included Mexican Americans in their norming processes. Similarly, those instruments that did not appear to take innovative practices into account were rejected since the program was geared to the introduction of these.

Some of the work in the external evaluation, especially those tasks that dealt with the particular designs of the experimental program, did not lend themselves to measurement by standardized instruments. In those cases, then, Development Associates, in conjunction with its technical panel and outside consultants, and with reviews by the National Institute of Education, produced specific instruments, and in some cases, modified some that had been used elsewhere to fit the local needs.

Standardized Instruments

The standardized instruments used during the four years of investigation are included in Table 4, and the years when each was administered are indicated. The bibliography contains the citations for their manuals and reports on their psychometric properties. Detailed reviews of their properties were included in the appropriate proposal to the National Institute of Education and briefer versions of these were incorporated into the narratives of the report texts; because of their availability to most researchers, they will not be reiterated herein.

Table 4: Standardized Instrumentation: 1972-1973 through 1975-1976

Instrument	Designation	1972	1973	1974	1975
		- 1973	- 1974	- 1975	- 1976
Tests of Basic Experiences	TOBE	x	x	x	x
Comprehensive Tests of Basic Skills	CTBS/Q	x	x	x	x
Self-Concept and Motivation Inventory*	SCAMIn	x	x	x	x
Student Behavior Description Questionnaire	SBDQ	x	x	x	x
Observation Schedule and Record**	OScAR 2a	x	x		
UCLA Attitude to Schooling Questionnaire*	ASQ			x	
Purdue Preschool Self Concept Scales	PPSC			x	
Modified Observation Schedule and Record	M/OScAR			x	x
Organization Climate Description Questionnaire	OCDQ	x	x		
Teacher Perceived Patterns of Control	TPPC	x	x		
Dimensions of Schooling Questionnaire***	DISQ			x	
James Language Dominance Test*	JLDT			x	
Nowicki-Strickland Locus of Control Scale	LC		x	x	
Guidance Testing Associates: Reading*	GTA			x	
Purdue Social Attitudes Scales for Primary Children*	PSAS			x	x
My Class Inventory	MCI				x
Learning Environment Inventory	LEI				x

*Spanish and English versions were used at least one year or were a part of the instrument.

**The two major components, emotional climate and teacher interpersonal style, were incorporated into the M/OScAR.

***An abbreviated form was included in the M/OScAR.

The experimental program in Edgewood stated in its funding document that its implementation would be geared to improving the environment of the classrooms and that this improvement, plus the student oriented materials, would enhance the students' self concept, motivation, and attitudes. This enhancement, in turn, was stated to result in improved academic achievement. Each of these elements was, therefore, addressed in the longitudinal studies of the students. The Tests of Basic Experiences (grades K and 1) and the Comprehensive Tests of Basic Skills, form Q (grades 2 through 12), were chosen cooperatively by the district, Level II, and the National Institute of Education to measure the academic achievement impact. (21) Only one other achievement measure was used, the parallel English and Spanish versions of the Guidance Testing Associates (St. Mary's University) Tests of Reading (47). This test was used to obtain indications of the students' progress in reading the two languages as postulated by the experimental program's bilingual education thrust.

The Self-Concept and Motivation Inventory was utilized all four years to measure these two grades K through 12 impacts. (61) Attitudes in grades 4 through 12 were addressed via the Student Behavior Description Questionnaire (20) the first three years; it was not administered the fourth year because of a reduction in the funds available to the research and the results had showed no important changes during the first three years. Difficulties were encountered in obtaining a satisfactory attitude instrument for grades K through 3 and agreement on which to administer was not reached until the third year. The Purdue Social Attitude Scales for Primary Children, Experimental Edition II, was then applied in years three and four. (17)

Because of the concerns for language bias, Spanish versions of the Self-Concept and Motivation Inventory (72) and the Purdue Social Attitude Scales for Primary Children (58) were produced by Development Associates in consultation with the authors and other consultants. The first was administered only once, year three, and the Purdue instrument was applied in Spanish in both years three and four. The investigations into the psychometric properties of the Spanish versions were reported in separate publications. (53, 54) Two of the standardized instruments listed in Table 4 were used in the investigation of these Spanish versions, the Purdue Self Concept Scales for Preschool Children (18) and the UCLA Attitude to School Questionnaire (76); the UCLA instrument was already available in both English and Spanish.

School and classroom climate studies were conducted with a variety of instruments to determine possible differentials important to the development of the program's goals. The Organization Climate Description Questionnaire (20) probed teachers' perceptions of the school as a whole; the Teacher Perceived Patterns of Control (20) and the self administered Dimensions of Schooling Questionnaire (44, 67) were utilized to study their classroom management and instructional practices. At the same time, the Observation Schedule and Record 2a (60) was administered by trained observers the first two years and two important elements of that instrument were incorporated into the Modified Observation Schedule and Record (63), along with an abbreviated version of the Dimensions of Schooling

Questionnaire, the last two years. Student perceptions of the classroom climate were measured only in the fourth year with the My Class Inventory (1) utilized for grades K through 4 and the Learning Environment Inventory (2) used with the students in grades 5 through 12.

A special study into pupil cognitive styles, in years two and three, was carried out with the Nowicki-Strickland Locus of Control Scale (66); the accompanying teacher version was also administered the second year. In one other special study, the James Language Dominance Test (51) was incorporated into the investigation of the properties of a dominance test developed by the Edgewood School Plan.

The scope of the use of standardized instruments was determined by the designs of the research, which were based on the premises declared by the experimental school program. The sequence of use was varied, responding to the needs of the cross sectional and longitudinal studies. Their application, along with the studies of process in the experimental schools project, yielded a strong body of data for the evaluation.

Data Analysis and Synthesis

The data collected from all the reference groups or data sources were synthesized periodically to evaluate the planning process, implementation, and impact of ESP treatments. Given a comprehensive project involving multiple changes introduced simultaneously, and an equally comprehensive evaluation design, the "laboratory" determination of unequivocal cause and effect was virtually impossible. This Level II external evaluation design dealt with the matter in two ways. To determine cause and effect between treatments and impact, data were subjected to a two stage analysis. In the first, the Level II team documented and measured treatments A_1 , A_2 , A_3 , ..., A_n , together with impacts B_1 , B_2 , B_3 , ..., B_n . In the second stage, each treatment was to be associated either logically or statistically with its most probable impact. Cause and effect, then, would be inferred from an association between treatment and impact (analogous to an antecedent-consequent relationship).

Each set of evaluation data collected to investigate the dimensions of educational change, educational compatibility, social context, and student impact was subjected to appropriate statistical treatments to determine group differences of relationships among the factors or variables and/or the significance of the findings. These methods ranged from the use of descriptive statistics to more sophisticated univariate and multivariate techniques. Numerous statistical tests were employed such as the chi square, analysis of variance (ANOVA), analysis of covariance (ANACOVA), and factorial ANOVAs. At times, nonparametric techniques were used when the level of measurement warranted it. Correlation and multiple regression analyses, trend analyses, assumptions of normality of distribution, homogeneity of variance, and independence of observations were checked whenever appropriate.

Many of the analytic approaches also incorporated blocking variables such as sex, grade, or ethnicity to control for the influence of these factors on impact levels. Followup analyses were often used to gain

insights into detected statistically significant overall relationships; the Tukey, Scheffe, and the Newman-Keuls multiple comparison techniques were performed for these purposes. Instruments designed especially for this study were subjected to psychometric item analysis procedures, including biserial correlation coefficients, difficulty level, and discriminatory power techniques. Corollary attitudinal measurement approaches also were used for aspects of the evaluation as suitable.

Because of the complexities of the methodology, all technical reports contained a special feature to enhance the level of data synthesis - interpretability of findings. That is, within each report's results section, conceptually meaningful sets of statistical results were individually summarized for their salient findings. At the close of each results section, an overview of the findings, across all separate summaries, also was provided as another interpretative aid.

Descriptive Data on Process Events

A variety of ESP activities and program component operations were chronicled during the years of the experimental schools program duration. For the most part, the information on these was gathered to:

- . gain insights into the extent of ESP implementation, as an intervening variable affecting summative program impact, and
- . descriptively note the processes of implementing an innovative program in an educational setting.

To that end, a large proportion of the ESP central staff meetings were attended by Level II staff members, who noted the discussions, interactions, decisions, and trends occurring during the meetings. Additionally, ESP component meetings and orientation sessions with principals, teachers, or parents were also observed. Special training activities and planning sessions were treated in the same fashion. In each case, a memorandum describing the events was prepared and filed to serve as process data. When minutes of the meetings were distributed by ESP, these, too, were added to the file. Work sheets, drafts of documents, and other materials distributed during or after any session were also accumulated. The resultant file, although massive, furnished important information for the external evaluation and implementation efforts.

Similarly, the ESP budgets and expenditure reports were collected and analyzed, along with the district fiscal reports, for the trends in development of activities. Cost effectiveness by experimental treatment, first anticipated as an important aspect of the Level II work, was impossible since separate accounting by specific program was not kept by the program or the district.

Equally important to the external evaluation description of the processes of development in the experimental program was the use of specialists in several fields. Generally, these performed two kinds of tasks: an examination of the quality of program implementation in the classrooms

and a study of the products of the program. Classroom implementation was examined by experienced teachers in the appropriate fields, especially in the teaching of the communication skills, bilingual education, individualized instruction, and the instruction in reading, mathematics, science, and the social studies. These observations were standardized through Development Associates produced behavior description guides, adapted from the Southwest Educational Development Laboratory (74) and Guszak & Lopez (48) models, and accompanied by narratives that described the special techniques utilized, as well as the materials. Experts also studied the curricular materials produced/adapted by the program and the documents published by ESP, especially those issued by the internal evaluation component.

The curricular materials studies were also supplemented by recognized techniques for describing such products. The two utilized in this evaluation were the Williams (88) - Kretschmer (59) - Fry (45) modifications of the Dale-Chall (22) readability formula for the determination of appropriateness of the English language materials to the intended grade level, and the Spaulding (75) readability techniques for Spanish language materials, utilizing the Rodriguez Bou (71) graded vocabulary lists. The examination of the curricular materials for the cultural (Mexican American, Latin American, and San Antonio experiences) content was conducted with a modified version of the Jackness model (50).

Case studies were also an important technique in the investigations into processes in the program. These served to describe the interim development of treatments, such as the Honda (49) report, and as summative research, as in the study of the communications skills program (14). Another investigation (4) demanded the development of a model, both descriptive and statistical, prior to the instrumentation design. That model, contained in Figure 5, represented more than two years of process examination and development before the study could begin. Primarily constructed to aid in the explanation of process events, it also demonstrated strong predictive qualities for use in the early stages of implementation of specific projects.

One of the most important techniques in the description of processes was the interview. More than 400 were conducted during the five years of Level II operation and these furnished a high proportion of the data available for this portion of the study. Most of the interviews were carried out with a written guide, standardized for the audience and/or program being evaluated. Short answer, open ended questions were the most frequent included in the format but Likert type rating scales were used to obtain the interviewees' quantified judgments about many facets of the experimental program's operations and products.

Questionnaires, although obtaining a great deal of data for the examination of products, were also indispensable to the process study. Their use in determining the location and degree of program treatments, the length of time such treatments were in effect, the amount of training received by the instructional staff, and the actual involvement of several ESP audiences in the experimental process, could only be documented through such an instrument since the numbers of persons involved

Figure 5: Multivariate Model for Predicting Incorporation of Innovative Practices*

PERCEPTIONS OF:		CONDITIONS	DECISION MAKING	EFFECTS	SUPPORT
Best Paced Mathematics External High School Cultural Advocacy	Administration:	Need Appropriateness Increase achievement Competent implementation Teacher understanding	Initial involvement Initial influence Present involvement Present influence Future involvement	Increased/improved: Student achievement Student attitude Parent attitude Teacher support treatment Teacher attitude toward students Admin. support treatment Admin. support innovation	Continued teacher use Continued school use Other teacher adoption Entire school adoption Edgewood adoption
	Teachers	Teacher endorsement Improve teacher status	Future influence Group influence		Other district adoption

*The model stated the following premise: perceptions of the two groups (administrators and teachers) on the factors (conditions for change, participation in the decision making process, and the effects of the innovation) will predict the support for the continuation/rejection of innovative practices (best paced mathematics, the external high school project, and cultural advocacy).

were very large. The teacher questionnaires returned through the first four years, for example, numbered 3,168, and these were invaluable in obtaining the tenor of the experimental process in so far as this client/participatory group was concerned. In addition to teachers, interviews on process were conducted with school board members, district administrators, principals, students, ESP staff members, and parents.

The study of school records, other than the aforementioned fiscal reports, were also an important element in the investigation of the processes in ESP. Formal records of student absentees, transfers, in-grade retentions, dropouts, of teacher and other staff changes, and of minutes of the school board meetings, all contributed to information about process or perceptions of it. Teacher assigned grades, a different type of school record, were also utilized in one of the social attitude investigations (56).

Memoranda and other correspondence involving the district, the Edgewood School Plan, the Level II office, and the National Institute of Education were also important on several occasions. While the data collection agreement did not extend to include all items within these two, a relatively large number were made available, and were classified, filed, and analyzed for the general process and special studies.

Limitations to the External Evaluation Methodologies

Each of the reports of the external evaluation investigations contains specific sections on the limitations to that particular study and should be consulted, for the details pertinent to them that cannot be reproduced in this final report. There were, however, some general limitations that caused considerable difficulty in collecting data or that posed restrictions on the conclusions that could be drawn from the data analyses.

The first of these was a combination of circumstances - the external evaluation team and the experimental schools project were intentionally housed separately - but much of the process development and most of the decision making took place outside the formal meetings of the experimental schools project personnel. Further, there was no regulated communication of the decisions to Level II except at certain time intervals or in specific documents such as quarterly and annual reports, and in publications. The researchers, therefore, of necessity had to discover the implementation of some of the project activities themselves. An important example was that of treatment implementation in which the team had to go from classroom to classroom to find the treatments (and sometimes the materials), by asking the teachers. Similarly, although most testing was scheduled in advance and was communicated to all the entities concerned, a few cases occurred when exceptions were not communicated and Level II could not monitor that event. Most importantly, the content of some of the decisions, while obvious when implemented, did not explain why the decision had been made and the subsequent explanations were often difficult and sometimes impossible to obtain. Occasionally conflicting explanations were offered by different persons involved.

Second, as described in the section on sampling, certain unavoidable occurrences involving students, teachers, and other district and program

staff left the sample size sometimes lower than had been anticipated. While these were seldom to such a serious extent that some portion of the investigation had to be abandoned, they frequently reduced the conclusions that could be drawn and/or caused changes in the procedures used in the research. Each of these limitations was also addressed in detail in the pertinent reports but because of their importance to the overall research design and methodologies, attention to them as generalities, was incorporated into this section.

While the limitations were important to the research process, they were not unusual in large scale, longitudinal studies of this type. Further, although a great many resources were necessary to overcome or alleviate their effects, that process was successful in almost all cases. The results of the investigation of the Edgewood School Plan, then, emanated from a careful and scientific process by the external evaluation team, its technical panel and other outside consultants, the Washington, DC, office of Development Associates, the National Institute of Education, and above all, of the Edgewood Independent School District and its Edgewood School Plan. The data presented in the numerous reports and the conclusions drawn from them, are authentic and credible, despite the limitations.

CHAPTER III: IMPACTS IN EDGEWOOD

The National Institute of Education's experimental schools program operated in the Edgewood Independent School District for more than five years. The original funding document, the Final Plan: Experimental Schools Project, had specified the approaches to be used, consisting generally of "making the school system compatible with the needs, experiences, and characteristics of the mostly Mexican American student body." (36) It further laid out an operational plan that created a mini-system within the district and a change agency, the Experimental Schools Project, later renamed the Edgewood School Plan, to specify the exact nature of the change plan and implement it into the experimental schools. The national experimental schools program contributed about four million dollars to the project, and the district, other federal programs, and monies from several state funds, were expended according to the general requirements for the programs and funding agencies.

Although the original dimensions for the study of the Edgewood School Plan were social contexts, compatibility, change, and student impacts, the five year investigation into the functioning of the program found, as would be expected, a mixture of these dimensions throughout much of the evaluation. Each of these has been preserved as a portion of the analyses, and the results contain elements pertaining to them. However, the operation of the Edgewood program tended to bring these dimensions together in the implementation of the project, rather than singling them out as separate treatments. The results are presented herein, then, in keeping with the actual operations rather than under separate headings of these dimensions.

Additionally, even though the program components were means to attaining certain goals, some of their functions were worthy of examination as interim products, or programmatic impacts. Since more than one component contributed to the functions of the experimental program, their functions were chosen as the unit of analysis rather than the program unit in most cases. The impacts of the functions toward the experimental program goals, enhancement of the affective and cognitive characteristics of the students, was discussed briefly as pertinent within programmatic impacts. Finally, the student impacts themselves, held by the district as the ultimate goal of the program, were examined separately.

Programmatic Results

Each of the components of the Edgewood experimental schools program had a series of objectives. These, when specified, formed the basis for the general investigation into their operations. Additionally, since they were actually the implementing entities, their effects on the overall goals were also examined although these latter were necessarily inferred results. (XVI)*

*Roman numerals indicate the abstract for the pertinent report contained in Volume II of this final report.

Curricular Materials

The curriculum development component and two other units that were incorporated into that organization's work, the components for handicapped children and cultural advocacy, produced a vast quantity of curricular materials during its five year life. Almost all of the materials were implemented somewhere in the project for at least some period of time. Many were discrete units and few were revised after initial implementation. One important exception to this isolated unit process was the best paced, later spirally sequenced, mathematics program, which was almost continuously revised and the earlier versions led to the final set of materials. A second exception was the teacher guides produced the last year, which contained some materials from previous curricular materials development. (XVII)

The results of expert examination of the curricular materials showed:

- . Most units contained instructional objectives and these were generally stated in measurable terms; some needed improvement.
- . The applicability to the grades and subjects was judged high except that some, particularly Spanish language materials, had measured readability levels too difficult for the students.
- . Strong San Antonio and Texas relevancy content was found in about half the units but content on Mexican Americans, Mexicans, and other Latin Americans was rare except in some middle and high school materials.
- . Teachers were generally positive about the materials during the first two years, skeptical the third, and were again positive during the fourth year; a concern about the materials being isolated units rather than building a curriculum persisted throughout the period.
- . Some improvement was needed in the physical presentation, especially in the size of print for primary pupils, and in illustration.

A partial curriculum outline was produced the first year but was never completed as a K-12 experimental program guide. Several of the materials produced the last year were arranged in scope and sequence and constituted curricula for the subjects treated and the grades covered.

No important differences in attitudes, self concept, and motivation were found between those students utilizing the experimental materials and those using the more traditional adopted texts. Few differences were found in academic achievement: early efforts in an integrated kindergarten program in one school; English in the high school (some differences in mathematics in the second, third, and fourth years); several non-patterned differences in some high school subjects the fourth year. The

longitudinal study of both the affective and cognitive domains found no important differences between the experimental and comparison groups' scores when viewed over the four year period studied. Since mathematics was the only area with fairly consistent improvement in achievement, the general conclusion was that the production of high quality materials, subjected to frequent revision, and implemented over a substantial amount of time, apparently offers a greater expectation of cognitive improvement than any quantity of separate, unmodified units, even if the quality of these is high.

Staff Development

The staff development component faced an almost constantly changing task since the teacher turnover rate was very high every year, thus sequencing the training from introduction to highly complex implementation strategies was hampered. The variability of the curricular materials, their approaches, and their utilization, likewise caused substantial changes in the training program. (XVII)

A large amount of training was offered, however, from short duration or subject sessions of a few hours to extended and indepth courses. More than 3400 teachers, principals, aides, parents, and other community members were reported to have attended some portions of these.* The participants generally rated the training as "useful," between the scale points of "undecided" and "very useful."

Since no affective differences were found in the students and few cognitive differences occurred, the part staff development played in this process provided little evidence of success. This must be tempered by the realization, however, that the changes instituted in the implementation during the years, plus the funding difficulties, made it unlikely that great measurable results could have been obtained. One set of training sequences on individualized instruction changed teacher classroom instructional practices little when carried out in isolation, seemed to have had an effect when the individualized materials for the implementation were provided. Increases in individualization practices were then found in several grades.

Instruction

An important goal of the experimental program was improved relationships between the teachers and the students. Measurement over the first four years showed no appreciable differences in emotional climate or teacher interpersonal styles between the experimental and comparison classrooms. Similarly, the proposed emphasis on the verbal portions of language arts instruction toward a balanced program of listening, reading, speaking, and writing skills did not result in experimental and comparison group differences. Increases in the use of Spanish in instruction and classroom management, also expected, were not evidenced; during the fourth year the comparison students spoke more Spanish at the high school and no differences were found elsewhere.

The elementary classroom practices varied little between the experimental and comparison groups. The teachers in both groups primarily utilized

*3400 is the aggregated attendance in all courses, not 3400 different persons.

subgroups as the focus of their attention. Some small increases toward individualization were discovered in some measures of the experimental classes. The practices in the middle schools were primarily "class as a whole" oriented but the experimental school was significantly more open in regard to the selection of materials for student use. In 1976, the only year in which significant differences occurred at the high school, the experimental classes were more open than the comparison on attention to individuals and teacher as a resource person rather than as a presenter of planned lessons. On the whole, then, experimental and comparison classrooms were alike during the third program year but in the fourth year some increases in the open education measures were registered for the experimental group, chiefly in the middle and high schools.

Expert teacher observations pointed out some rather serious problems in language arts instruction, especially in the teaching of Spanish in the elementary bilingual program. The observations found excellent implementation in middle and high school mathematics, and in middle school social studies. The experts noted a great deal of variation in the quality of the instruction but judged it, overall, as satisfactory or better.

Student perceptions of the learning environment were measured only in the fourth year. Few differences were found between the experimental and comparison groups and these were not consistently in favor of one group or the other. Their perceptions were generally favorable to the instructional program.

An increase in the proportion of certified teachers and teachers with the masters degree may have been associated with the general thrust of teacher preparation although the proportion increased in the district as a whole. A type of community college program was developed in cooperation with a local institution of higher learning and many students took beginning courses in the experimental program. Some received credit for prior learning through work experiences.

Non credit training for adults occurred at intervals through the five years and included mostly short term classes or seminars. Few measures of results were attempted but the subjects appeared relevant to the projects and some individuals were later incorporated into several activities of the experimental program.

The implementation of staff development appeared to have had some measurable benefits to the out of school youth and adults in the Edgewood community. It failed to produce results in some critical areas, especially in the affective and cognitive domains of students in school, when measured against comparison groups. It appeared reasonable to conclude that the frequent changes in implementation may have diminished the opportunities for more substantial results.

Communication Skills

Language arts had been identified in the Final Plan and in a special needs assessment survey as one of the major areas requiring improvement.

A special program was begun in fall 1974 to improve these through an integrated communications skills program. (XV)

Implementation of the new program was not as widespread as indicated by the staff; about 33% of the 49 teachers was utilizing the materials as the primary vehicle of instruction. Fourteen percent did not use them at all. The principals' concerns for the teacher training needed for implementation, plus their and the teachers' concerns about the provision of the materials, appeared to have influenced the amount of implementation.

The use of Spanish in the classrooms, as expected from the program design, did not appear to have increased and was no different from the amount observed in comparison classes. Teachers perceived their classroom practices to be moving toward openness, particularly those related to individualization. Some differences were found between the experimental and comparison groups' perceptions but these were not borne out by observations at the elementary and middle school levels; observations showed the two groups' practices to be about the same. Some difference was found at the secondary level, both in perceptions and in observations; the experimental groups' practices were somewhat less traditional than were the comparisons'.

Thus, although the experimental staff members, principals, and teachers had generally perceived a favorable climate for the introduction of the communications skills program, implementation was considerably less than expected by the staff. These findings suggested that managerial concerns, both from the principals' and teachers' standpoint, may be crucial in effecting implementation. Their previous experiences with partial curriculum, combined with possession of only a few weeks of materials, appeared to mitigate against complete adoption and implementation in this case.

Teacher Classroom Behaviors

The experimental schools project in the Edgewood district proposed to improve the classroom climate in order to better the relations between students and teachers, and concomitantly, move toward individualization of instruction. (39) The classes were monitored for seven semesters, from spring 1973 through spring 1976. The major findings were (XIV):

Emotional Climate

- . The emotional climate measure scores were mostly at low, positive levels; few negative scores resulted.
- . The experimental and comparison classrooms, as groups, were not different.
- . The experimental and comparison elementary classrooms exhibited a nonsignificant parallel trend of increasing scores across the seven semesters; the middle and high school level scores did not show this trend.

Teacher Interpersonal Style

- . The classroom scores were predominantly at low, positive levels; few negative scores resulted.

- The experimental and comparison groups of classrooms were not different.
- The experimental and comparison elementary scores showed a nearly parallel, nonsignificant increase from fall 1975 through spring 1976; the middle and secondary schools did not show this trend.

Language Arts Skills Domain

- Instructional emphasis on listening, reading, and verbal skills in the elementary schools and listening, reading, and writing skills in the middle and high schools occupied most of the classroom time.
- The areas of verbal skills, such as oral expression, were a distinctly minor component in the middle and high schools.

Although the experimental and comparison classes were generally alike through most of the observations, in the last set, spring 1976, ESP was found to have moved toward individualization on some measures.

The thrust of the experimental program was to improve the learning environment through:

- orientation and inservice training for teachers that would enhance the teacher/pupil relationships;
- provision of culturally relevant materials;
- encouraging the use of Spanish to aid the communications process.

The implementation of these factors in this program neither significantly changed the emotional climate nor teacher interpersonal style scores over the four year time span, nor did it significantly raise the scores of these measures above those found in the group of comparison classrooms. The findings led to the tentative conclusion that these factors and/or the degree of their implementation, did not significantly alter the academic climate, as defined by the dimensions measured.

To address the specific needs of the students, individualization of instruction was a concern of the program. The data for the first three years showed few practices related to individualization in the classes. Through that period of time, no important differences were found between the experimental and comparison classrooms. Orientation and training appeared insufficient to cause major shifts away from subgroup and whole class approaches, and toward individualization of instruction.

In the fourth year, the program provided substantial amounts of materials designed for individualization. Seven months later, several factors involved in individualization were observed in ESP and comparison classrooms and these were significantly greater in ESP than in comparison classrooms for the middle and high schools. Because of the existence of differences at one single observation only, the last in the series, the researchers tentatively concluded that training, enhanced by the appropriate materials, had brought about changes in instructional approaches.

Internal Evaluation

The internal evaluation component carried out an intermediate function in the program - helping to clarify needs and then providing information to the experimental project that would aid in sharpening the focus of the other components. It also conducted some studies that were designed to provide data to the district as a whole. (46, IV, XVIII)

The internal evaluation unit faced a heavy burden of work because of a late start of one year. Most of the other components had been in some stage of development and operation for nearly a year; some of the tasks related to them, or basic to their functioning, had not yet been performed. Internal evaluation almost immediately carried out a needs assessment survey and the data from that study, along with others available from other sources, were utilized in a replanning process of the experimental program. The planning resulted in a redirection of some program efforts.

Subsequently, Level I carried out a series of investigations: some for the staff development component, including analyses of the component's training; one on classroom observations via a unique tri-dimensional model; one on the teachers' perceptions of their classroom management; administered and analyzed the Mooney Problem Check List (62) for some grades; a series of studies of the experimental and three other principals' functioning; assisted the family services component in its documentation for acceptance of the alternative high school; conducted a study of student withdrawals; assisted the language dominance committee in the development and study of an instrument, and student placement into language modules derived from the instrument; and ultimately authored a revision of the instrument. Reports on these, plus quarterly/annual process documents were submitted to the National Institute of Education, although only about half the reports were tendered Level II for examination and information purposes.

During the first year of operations, the ESP staff, principals, and teachers, perceived Level I's work positively. The perceptions by the staff development and family services components, three of the six ESP principals, and the National Institute of Education remained positive through the next three years. The curriculum development staff and teachers registered lowered perceptions after the first measurement, fall 1974, and these did not improve thereafter. Cultural advocacy, a separate component for only two of the four years of Level I existence, indicated mixed perceptions. Relationships with the district pupil appraisal office, Level II, and the district administration were described by all of these entities, and by Level I, as strained. The ESP director supported Level I through the four years.

Expert examination of the Level I documents found them of widely varying quality - from weak to excellent. The studies of the principals, the tri-dimensional classroom observations, and to some degree, the study of the staff development training, were judged technically well done. Various problems were encountered with the others: clerical and some technical flaws, conclusions that over reached the data, failure to address the needs of some audiences adequately, and invasion of privacy

by including the names of persons studied. The language dominance instrument was described by a panel of test experts as of questionable validity and they pointed out that no reliability data were presented. The reports about the instrument were technically weak. (IX, XVIII)

Case Studies in Educational Change

Although all of the treatments studied during the five years had the potential for bringing about educational change, the process and the salient factors within that process were of major importance to the experimental schools program across the United States. In consultation with the technical panel, the external evaluation team chose three specific treatments for process study: best paced mathematics, cultural advocacy, and the external high school project. (XIII)

The perspective of the study was that educational change would have been deemed to occur if a particular treatment, financed as a part of the project with federal "seed money," was likely to be incorporated into the district, that is, would receive support for continuance even after such federal funds were no longer available. Four factors, via perceptions, were selected for study. These factors were: the conditions indicative of a need or readiness for change, involvement of system actors in the decision making process affecting the change, effects of the treatment with respect to its intended outcomes, and the perceived support reported for its continuance. Each was investigated from the viewpoint of two sets of actors within the school system: administrators (management) and teachers (operations).

Analyses of the best paced mathematics treatment indicated that regardless of which group of system actors was used as a referent - all actors, management only, or teachers only - the single variable that accounted for most of the explained variance in support was conditions. For the sample of actors as a whole, conditions alone explained 53% of the variance in support. Effects explained only 6% of the variance and decisions only 1%. When controlling for position in the status hierarchy, the relative contribution of decisions and effects to variance in support showed a reversal for the two groups, management and operations.

The external high school treatment results revealed some important similarities and differences. On the analyses using the whole group of actors, and operations alone, as referents, conditions once again appeared as the single most important variable in the model. For the entire group considered as a whole, and for the operations group, conditions explained 55% of the variance in support. For these same groups, effects explained an additional 7% and 9% of the variance, respectively, while decisions accounted for a negligible additional amount of the explained variance. Since the teachers' responses represented over 95% of the total, the total group and operations results are usually parallel. For management alone, while conditions continued to explain a large proportion of the variance in support (66%), decisions became an important explanatory variable accounting for an additional 15% of the explained variance.

For the cultural advocacy treatment, results indicating the importance of the variables for explaining and predicting support across groups closely resembled those found for best paced mathematics. For system actors considered separately, conditions was the single most important variable, while the importance of the two remaining variables, decisions and effects, was reversed when considering management and labor separately.

These results considered collectively suggested that when contemplating change in an educational system as a whole, conditions and effects are more important factors than involvement in decision making, and that of these two variables, conditions is by far the more important factor. Differences did emerge between management and operations, however, with respect to the perceived relative involvement in decisions making and effects of the treatment. Participation in decision making was consistently more important to management than was program effect, while the reverse was true for teachers.

One year later, and unknown to the researchers or the questionnaire respondents, the external high school project was officially adopted by the district board for the year following the termination of the experimental program. The best paced mathematics treatment was at least partially incorporated into the same year's academic program for the district. Cultural advocacy, at least as the distinct treatment, seemed to have disappeared; there was no evidence that it had survived the termination of the experimental program. The likelihood of these three occurrences was thus predictable from the investigation.

Expertise Retained in the District

At the time this report was written, consideration of some of the products from the experimental schools program was still underway in the district. In addition to the already discussed external high school and mathematics programs, it appeared that much of the curricular materials produced and/or revised during the last year would be utilized to some degree within Edgewood. The technique for studying the role functioning of principals was receiving favorable comment, along with the tri-dimensional classroom observation methodology, although this latter was termed expensive and likely to be used only occasionally. The team approach in the middle school and the integrated studies project in the high school had been replaced by other programs. The state designed bilingual program was in effect in the elementary schools. (38)

Four of the experimental project staff were placed in supervisory positions. The expertise they had gained in the project, and probably some of the materials developed in their work, would thus have a substantial opportunity for continued utilization. Another member, from the internal evaluation unit, had earlier transferred to an evaluation position with another federal program. An assistant principal in one of the ESP elementary schools was promoted to principal of another school, thus his experience was retained in the district. Several of the staff returned to teaching positions in the district and the added educational dimensions they acquired within ESP should make them stronger teachers.

Student Impacts

A major goal of the Experimental School Plan was to improve student achievement, promote psychosocial growth, and enhance positive student behavior. The ESP program sought to eliminate perceived "incompatibilities" in the instructional system by conducting a variety of treatments directed at increasing teacher competencies, promoting individualized instruction, improving curriculum, and other activities so as to "reflect the student's cultural, language and economic characteristics, and be compatible with his learning style."

To ascertain the relative impact of the varied ESP treatments, and overall program effect on students, a variety of cognitive, affective, and behavioral data were collected from the ESP treatment and comparison (non treatment) groups. The data collected included achievement, self concept, motivation, attitudes, and locus of control.

The assessment of academic achievement represented an important although not exclusive measure of the efficacy of the experimental school plan. To assess the academic achievement of students in ESP designated schools, a longitudinal, time series design was instituted at the inception of the program. Students were initially tested in grades K, 1, 5, 8, and 10 in ESP and comparison schools and retested annually for four years (fall 1972 through spring 1976). Over the duration of the study, additional grades were tested as dictated by program evaluation requirements. The grades selected for comprehensive achievement testing were those in which the experimental school program treatments were instituted.

Standardized, norm referenced tests, the Tests of Basic Experiences (TOBE) and the Comprehensive Tests of Basic Skills, Form Q (CTBS/Q), were used to assess achievement. (21) The TOBE assessed grades K-1 mathematics, language, science, and social studies. The CTBS/Q was applied to grades 2-12 to assess reading, language, arithmetic, and study skills. Achievement data were collected and analyzed annually (i.e., cross sectionally), using all students appropriate to the study, and across four years (i.e., longitudinally), using only those students on whom such data were available. Analyses included examining possible treatment effects by grade, class when appropriate, and sex.

The academic achievement findings reported draw extensively from four major reports: Second Interim Report on the Edgewood School Plan (IV), Academic Achievement of Mexican American Students (XI), Psychosocial Growth and Academic Achievement of Mexican American Students (X), and A Comparative Analysis of English and Spanish Reading Performance of Mexican American Students (V).

Cross Sectional Achievement Studies

The year in which the experimental school project was initiated (1972), students in both the designated experimental and comparison schools, at the grades tested, revealed similar achievement test scores. Both groups of students scored alike with one minor exception on one subtest; the difference was considered to be of no practical importance.

Similarly, there were no practical differences in achievement scores between the groups in the spring 1973 post test.

Analysis of the second year's achievement data (1973-1974) revealed a number of significant differences between the experimental and comparison groups. However, these differences were neither consistent nor uniform. In one of the four experimental schools, the kindergarten, first and fifth grade pupils scored significantly higher on the TOBE subtests and the CTBS/Q language subtest. Detailed examination of this particular school suggested that the results may have been due to the instructional intervention of the principal and the quality of the instructional staff at these grades. Another major difference emerged in the achievement scores of a sample of grade nine in the experimental high school. A large increase in mathematics appeared to account for much of the differences. An ESP mathematics curriculum treatment program was in effect there. In view of the large number of statistical analyses performed, these differences, while notable, appeared to be the exception rather than the rule.

The third year (1974-1975), cross sectional analysis of achievement data revealed mixed results. In some grades the experimental group did significantly better, while in other grades the comparison group produced the highest achievement scores. The experimental kindergarten and first, and eighth through twelfth exhibited a decided trend toward higher although not always significant scores than the comparison group. Conversely, however, the comparison second through seventh grades did significantly better than those experimental grades. Examination of sex differences revealed some significantly higher achievement scores for females in the experimental program. Detailed examination of the treatment curricula did not reveal indications of biases favoring females.

In the fourth and final year of measurement (1975-1976), achievement data were again collected, and the results between the experimental and comparison groups were decidedly mixed. The experimental group in kindergarten and first grade continued with high mathematics scores and the second grade produced high gains in all subtests. In contrast, the comparison group in grades four through six, eight, and nine achieved some higher gains than did the corresponding experimental grades. There were no significant group differences in grades three or seven. The experimental group produced some scattered differences in the remaining grades. As in the third year, there were some significant sex differences with females, in both groups this time, obtaining higher achievement scores.

In many cases throughout the K-12 span, the treatment students scored lower the fourth year than the corresponding grades had scored the year before, despite the relatively massive individualized instruction treatments infused into most classes in the experimental schools in the fourth year. The several experimental elementary schools still showed significantly different means, with one comparison school highest and some treatment schools decidedly lower. An examination of the programs in these schools did not provide a consistent explanation for the differences. However, observational and interview data suggested the

experimental teachers and students may have experienced adjustment difficulties that detracted, at least temporarily, from the general progress.

Examination of the cross sectional achievement data across the four years provided important general information:

1. Although not the focus of the study, it must be noted that both the experimental and comparison groups achievement scores were below the national norm; while pupils scored at or about the norm in kindergarten, the gap progressively widened to 4.8 years below the norm by the end of grade twelve.
2. The achievement means of the treatment and comparison groups were relatively stable, with few exceptions, across the four years.
3. Performance was not uniform between girls and boys; the females were frequently substantially higher than males, and the experimental females were almost always higher than the other three groups.
4. No convincingly consistent pattern of achievement differences was encountered when the scores were analyzed by performance quartiles or by relationships to national norms.

In summary, because of the generally inconsistent pattern of achievement results and lack of other evidence regarding treatment efficacy, the conclusion must be that the experimental program was unable to effect general academic achievement increases with its treatments. The Edgewood School Plan, during its first four years of funding, introduced a variety of treatments over different grades and for varying lengths of time. Some consistency of treatment was observed in the general approach and in the staff training supplied to teachers. When viewed annually, some significantly higher experimental students' scores appeared to be associated with some treatments in the particular subjects and grades where the differences between experimental and comparison groups were noted. The experimental program, however, tended to change its treatments often or at least to modify them considerably; persistence of treatment effect was not encountered. In the aggregate, the considerable inconsistencies led to the general conclusion that the experimental program had not substantially improved the achievement scores of its pupils when viewed by school, grade, or subject matter in relation to the Edgewood comparison students that did not participate in the program.

Longitudinal Achievement Studies

In concert with the investigation of achievement within years (i.e., cross sectional), a longitudinal study across years was conducted. That is, the same students were tracked across years as cohorts, or groups. Three groups of students were used. Group I experimental and comparison students began as first graders and were individually followed through grade four. Group II was followed from fifth through eighth grade, and Group III from eighth through tenth grade. The fourth year of group III, grade eleven, suffered considerably from attrition and therefore was excluded from analysis.

The longitudinal study of intact student groups employed subsamples of students in the previous cross sectional study. Scores were standardized and studied by repeated measures analysis. The variables of grade, group, and sex, in relationship to reading, language, arithmetic, total battery scores, and study skills were analyzed.

Analysis of the Group I data where the same students were tracked for four years revealed a general progressive increase in achievement for both groups. There were no significant differences except in the language achievement subtest; the comparison group achieved a significantly higher mean standard score as compared to the experimental group.

The analysis of Group II revealed no significant differences on any achievement subtest between the experimental and comparison groups. For both groups there was an increase from grade five to grade six, a decrease in scores from grade seven to grade eight. A statistically significant year effect between grades five and six occurred, possibly due to the transition between grades, but the differences appeared more likely to have been caused by an instrument form change.

For Group III there was a decline in achievement scores from grade eight to grade nine, and a slight increase in scores between grades nine and ten. These differences were significant across years, but there were no significant differences between the experimental and comparison groups.

In summary, there was a steady upward progression in scores for Group I, but the only significant group effect was that of the comparison group obtaining higher language scores than the experimental group. For Groups II and III, the scores fluctuated, and although there were some differences across years, there were no significant differences in achievement between the experimental and comparison groups. The data indicated that the experimental program treatments did not produce the increased achievement scores of its student participants as compared to those students who did not participate in the program.

English and Spanish Reading

To ascertain whether bilingual Mexican American students scored significantly better on parallel Spanish-English reading tests, a study of those performances was conducted. The instrument was the Guidance Testing Associates (GTA) Tests of Reading. (47) The English GTA reading test scores were also compared to the CTBS/Q reading subtest scores. Students used in the study were selected on the basis of language fluency from the experimental bilingual program and a Title VII bilingual program from grades three and five. A similar grade eight group was selected to ascertain the relationship between the English GTA and CTBS/Q reading subtest scores. (V)

The results of the parallel GTA English and Spanish reading tests' scores of students indicated significantly higher scores on the English as compared to the Spanish version by both the experimental and Title VII groups. Additionally, the Title VII groups in grade three and five obtained significantly higher scores on two subtests (vocabulary, level of comprehension),

whereas the experimental group did significantly better on a third subtest (speed of comprehension). The relationship between the various GTA subtests ranged from moderate to high. There were, in addition, a number of sex differences, with females obtaining higher scores than males in grades three and five.

The comparison of the GTA Tests of Reading with the CTBS/Q reading subtest revealed a moderate relationship between these at grades three, five, and eight. There were, however, no significant differences between GTA reading and CTBS/Q reading subtest standardized scores.

The study suggested that it cannot be assumed that bilingual Mexican American students will ipso facto do better on a Spanish than an English test. A number of factors impinge on test performance such as language and reading literacy, the quality of bilingual pedagogical practices, and the properties of the tests being used. Lastly, the study indicated a need for empirical studies of Spanish-English language dynamics with respect to achievement.

Affective Assessment

As previously noted, the experimental school planners not only sought to increase students' academic achievement but also sought to enhance students' attitudes, self concept, and motivation. The ESP plan alleged that Mexican American pupils' attitudes toward school were negative and needed to be changed. Similarly, the plan stated that "...children often come to school with negative feelings about self...and...collision with school usually reinforces these feelings or creates new ones."

In order to empirically determine the validity of the assumptions regarding affect, and the ESP program impact on improving student affect, a series of studies was conducted. The specific affective domains investigated were self concept, motivation, attitudes, values, and locus of control.

Self Concept and Motivation

Three separate studies on academic self concept and motivation were conducted with the student participants. Given the paucity of studies on Mexican American pupils, other investigations were conducted and/or the scores compared with those of students in South Texas and Berkeley, California. The instrument used was the Self-Concept and Motivation Inventory (61) applicable to grades K-12, and normed on Anglos and various minority groups, including Mexican Americans, from various geographic regions. (III, IV, X)

In the cross sectional studies of self concept and motivation within years, the students in all grades tested scored at or above the norm with few minor exceptions. The general trend for self concept was that students scored slightly below the norm at kindergarten, then with an upward progression to norm in grade two, then some fluctuation in scores above and to the norm thereafter. For middle and secondary students, scores were also at or above the norm and were relatively stable. These same studies indicated motivation scores below the norm at grades kindergarten

and one, and fluctuated at or just below the norm for later elementary and middle school grades. Analysis of the data for experimental and comparison group differences produced mixed results on both self concept and motivation. In a few cases the experimental group did significantly better, and in others the comparison group was higher. Examination of a few sex differences revealed that females generally obtained higher, often significantly so, differences than their male counterparts.

A longitudinal study of the same three groups of students tracked on achievement revealed no significant group differences on self concept or motivation. There were a very few differences due to either the group by year or sex effect, but when viewed against the numerous and extensive statistical analyses, the evidence for lack of treatment program impact was great. That is, regardless of students' entry grade into the experimental program, and regardless of the exposure to the treatments, the data did not demonstrate a measurable impact of the experimental program in enhancing the self concept and motivation of students.

Finally, Spanish versions (72) of the Self-Concept and Motivation Inventory were administered to determine if a language bias had entered into the scores of these two concepts. Bilingual children were tested and no important differences were found except where circumstances had changed between the English and Spanish administrations. There was no evidence for consistent language bias at any level. (XII)

These data indicated that with respect to self concept, the scores of the large number of Mexican American students tested were not low or "negative." Similarly, the motivation data results, although slightly below the norm at the early elementary grades, was at or above the norm for most other grades. Thus, the data suggested that the experimental program's assumption that Mexican American students have a low or "negative" affective trait, was not substantiated.

Attitudes of Primary Students

The experimental program also contended that Mexican American pupils began the process of formal education with a negative attitude which worsened over time. A set of treatments, previously discussed, were proposed to alter these presumed negative attitudes.

To ascertain the validity of the negative attitude proposition and possible treatment program effect, the social attitudes of K-3 pupils in the treatment and comparison group were studied. The instrument used was the Purdue Social Attitudes Scales for Primary Children, Experimental Edition II (17). English and Spanish versions (58) were used. The instrument assessed social attitudes of pupils and consisted of several subtests. (VI, VII)

Results of the attitude study revealed that the experimental and comparison kindergarten through third grade students scored at or above the norm on this social attitudes test. On the English version, the comparison and treatment groups generally scored alike, although the comparison group did show some higher scores. The pattern was not consistent. On

the Spanish version, there were no significant differences between treatment and comparison groups. Similarly, there were no sex differences on either version. The scores of students were also found to generally increase over the years. Contrasts of ethnic group scores indicated that Mexican Americans, Blacks, and Anglos generally scored alike.

In brief, the data on social attitudes for kindergarten through third grade students indicated that the experimental program's contentions regarding negative and worsening attitudes were not upheld. Moreover, no discernible effect of the experimental program was found. Likewise, the likelihood of language bias was not upheld in that the bilingual children scored about alike in the English and Spanish versions of the tests.

Attitudes of Elementary and Secondary Students

To ascertain the attitudes of later elementary, middle, and secondary students toward their school environment, a companion study to the early elementary attitude study was conducted. The instrument used was the Student Behavior Descriptive Questionnaire (20), administered to a large sample of treatment and comparison students over several years. The instrument consisted of three major subtests of achievement, affiliation, and inclusion attitudes. (IV, X)

Corollary with the affective results previously reported, the study revealed that students in the treatment and comparison groups scored about the same as other groups in the US on all subtests. The students, mostly Mexican Americans, scored consistently at the norm on achievement, affiliation, and inclusion attitudes. There were no significant differences between the groups tested and the scores were relatively stable across years. In other words, the treatment and comparison groups demonstrated attitudes and perceptions of their school environment similar to that of students elsewhere. Again, the experimental program appeared to have had no significant impact on the attitudes of these students.

Locus of Control

In order to further probe the affective domain and go beyond the experimental program assumptions, small exploratory studies on locus of control and values were conducted. The studies of locus of control examined the attribution of reward expectancy, with the attribution of rewards resulting from one's actions referred to as internal locus of control, and perceived rewards attributed to luck or external actions, termed external locus of control.

One study (VIII) investigated the locus of control of second, third, and fourth grade Mexican American students utilizing the Nowicki-Strickland Abbreviated Elementary Locus of Control scale (66). Data on self concept and achievement were available from instruments noted previously. The study found that females with internal locus of control and low self concept scores obtained significantly higher reading, language, and total achievement battery scores than the other groups. The difference was attributed to achievement need, plus social and physical maturation. The study also found that neither self concept, locus of control, nor

sex, when analyzed separately, were significantly related to achievement, whereas the combination of factors resulted in differences.

In a subsequent study (8) of locus of control and achievement of grade three and a combined grades seven and eight sample of treatment students, no significant differences among the grade three sample were found. In the grades seven and eight sample, however, the external locus of control group, and females specifically, consistently obtained significantly higher achievement scores than did the internal locus of control group.

The findings of these studies, while tentative because of the exploratory nature of the research, suggested further serious empirical investigation of locus of control, in concert with other factors, is necessary. Such research may have important implications in identifying significant factors in attempting to key instruction to the characteristics of these students.

Values

An exploratory study of values (13, 64) was also conducted since the experimental school program had posited that the variance in values between lower class Mexican American students and the educational institution via teachers, was a source of serious conflict. The instrument used was a value scale developed by the evaluation staff. The scale was administered to samples of teachers, and lower and middle income students.

The significant findings of the study were that the value influences toward school factors, demeanor, and materialism of lower and middle income students were similar in most cases. Students tested ascribed to middle class values. In other words, the students tested perceived no conflict in values. Teachers were found to ascribe to some middle class values while indicating rejection of others. These findings were found to be consonant with other studies conducted in the evaluation of the experimental school program. Student attitudes toward school, teachers, and peers were normative. Similarly, students were consistently at the norm of self concept, and almost always so on motivation. The results of the values study were held as corroborative.

Affective-Cognitive Relationships

The Edgewood School Plan proposed that the affective traits of its Mexican American students were low or negative, and that if these were improved, concomitant increases in achievement would result. Several studies explored the proposition of a significant relationship between affect and cognition. (III, VII, X)

An extensive study of the relationship to self concept, motivation, attitudes, and achievement of Mexican American students in kindergarten through eleventh grades was conducted. The data analyzed within and across years revealed no meaningful relationship of self concept, or motivation, or attitudes with achievement. Extensive statistical analyses showed that the amount of variance in achievement scores due to self concept, motivation, and attitudes ranged from a low of zero to less than ten

percent with few very minor exceptions. Also, the combined effects of sex and affect accounted for little difference in achievement. In view of the extensive analyses performed, the amount of relationship between the affective variables studied and achievement was not regarded as meaningful. In other words, there was little, if any, relationship between affect and cognition in the students tested.

Separate comparison studies also explored the relationship between affect and cognition. The social attitudes study, previously discussed, found no meaningful relationship between social attitudes and achievement test scores but did find a high correlation between school attitude and grades. Another study examined the relationship of two language dominance tests to achievement and it also revealed no significant relationship between the two.

A multidimensional study of self concept and language achievement found a positive, but small, relationship between these factors at kindergarten and third grade. The locus of control studies indicated that locus orientation did not significantly predict achievement scores except for the previously discussed case of low self concept, internally oriented girls.

Behavioral Impacts

During the first two years, exhaustive studies of absenteeism, dropouts, and in-grade retentions were conducted. (IV) No important differences in any of these were discovered when the treatment and comparison groups were analyzed. The absenteeism did not rise in the two high schools included in the investigation, and this was noted particularly since the overall high school attendance in the county declined 2% during that period. Later in the project's life, the internal evaluation component of the Edgewood School Plan found that the number of dropouts in the experimental high school was greater than that reported, primarily due to students saying they were transferring elsewhere, but, in fact, not attending school anywhere. (68)

The family services component conducted a variety of non-classroom activities for students, including a special program to reduce absenteeism and dropouts. Because of the privacy nature of some of the records, the results could not be quantified into increased attendance and returns to school. However, in several cases when interviews were conducted with students treated by that program, a considerable positive perception about what the staff had done - and many students reported to be back into school because of that work - were discovered. In fact, perceptions as a behavioral impact showed quite favorable student attitudes toward these out-of-class activities generally, and toward a drug abuse prevention project particularly. A health careers orientation project did show behavioral results as seven students were placed in those occupations following the training.

The Edgewood School Plan cooperated with the office of the county school superintendent and the state office for adult education in making more classes available toward gaining the knowledge necessary to pass the examinations for the general diploma equivalency certificate. While little

perceptual difference existed between the two programs, it appeared that there was an increase in the number of adults that took advantage of this type of education; approximately 20% more were enrolled in the district that year than had been the year before. Since the examinations were taken outside the district, the number of successful candidates for the certificate could not be ascertained.

During the fourth and fifth years of the experimental program, an alternative high school project for those who were 17 and had been out of school for one year and for any 18 year old in the district that had not completed the graduation requirement was implemented. This project graduated 51 students during its first two years and more than 200 other students were enrolled in the program. This important effort was jointly sponsored by the Edgewood School Plan, special education, the county and state offices for adult education, the San Antonio office of the Economic Opportunity Development Corporation, and the district.

CHAPTER IV: CONCLUSIONS AND RECOMMENDATIONS

The massive improvement project undertaken by the National Institute of Education and the Edgewood Independent School District potentially covered nearly every subject taught in kindergarten through twelfth grade plus some programs for adults beyond the regular school program. The mini-system of experimental schools encompassed four elementary, one middle, and one secondary school and approximately 6000 students every year. Further, the school district itself was a target for change. The district and school administrators, the instructional staffs, and the community were listed by the project as both elements of change and subjects of improvement.

The equally massive external evaluation effort monitored the processes of change and measured the quantitative variables listed by the project as the ultimate products of the experimental schools work. Although the proposal to the National Institute of Education, the Edgewood Final Plan, designated a five year program with certain longitudinal efforts, few intervention strategies were implemented for more than two years. The variations across time caused an equal number of modifications in the evaluation designs, resulting in short and long term summative studies.

As would be expected, then, the major conclusions emanating from the five year project are process oriented, that is, they address the operation of the experimental schools project from the view provided by the project's own documents, along with those from the National Institute of Education. The major thrust of the program - the affective, behavioral, and cognitive domains of the students - provided a set of general indicators from which some of the overall results could be extrapolated.

Premises of the Edgewood Program

The Edgewood experimental schools proposal and its subsequent modifications consistently, throughout the five years, subscribed to a theory of incompatibilities which in essence said that the school system, the administrators, the teachers, the curricular materials, and the instructional methodologies were dissonant with the experiences, language, affective characteristics and cognitive learning styles of the pupils. The experimental program, therefore, intended to change the elements of the system and the system itself, to bring them into consonance with the pupil characteristics. The entire community, school and non-school, was to be brought into the decision making about the program, and the changes that would be effected would reverse the postulated negative attitudes, self concept, and motivation of these mostly Mexican American pupils and that change would result in improved academic achievement.

The studies by the Edgewood experimental program and by the external evaluation unit led to the following conclusions about the premises on which the project was built:

- Intensive investigations into the students' attitudes, self concept, motivation, using more than one instrument, and utilizing both Spanish and English language versions, did not support the premise of negative affective characteristics; in fact, in most of the studies, the students showed about the same range of characteristics as those tested elsewhere by the same instruments.

Since the mean scores on the affective tests almost invariably were at the norm, a total student treatment to improve the affective characteristics was a nearly impossible task. Raising a whole group of students to a score above norm has rarely been accomplished. The major strategies of increasing the proportion of Mexican American personnel, inclusion of Mexican American experiential content in the curricula, and fostering greater use of the Spanish language did not alter the affective scores of the students.

- Equally intensive studies into the academic achievement of the students showed no consistent, longitudinal improvement of the treatment students' standardized test scores over those of the comparison group nor in relationship to the national norms.

The intervention strategies of increased Mexican American and Spanish language content, of more Mexican American role models, and of individualized instruction were not successful in changing the relative academic achievement of the pupils. The premise was not upheld.

- The program assumed that the students, faculty, administration, and community would strongly support teaching in Spanish and teaching about the Mexican and/or Mexican American way of life; except for a few members of each group, the evidence showed little support for these as the program progressed.

Most of the data collected by the experimental project itself and by the external evaluation unit demonstrated what generally is considered to be "conservative" or "traditional" orientations to education. Interviews with members of the community, the school board, the district staff, and the student body repeatedly emphasized concerns with the "basics" of education rather than with the cultural and language programs thought to be of interest to them. Bilingual education, even after the State of Texas passed a law making such work mandatory, was primarily tolerated rather than espoused in the district. The premise of strong support for Mexican American cultural input was not upheld.

The difficulties of preparing a proposal for project funding are myriad and the resources seldom provide for research into the needs and desires of the population to be served. Further, when a project is funded, the sponsoring agency generally expects process and products to get underway almost immediately. It is not surprising, then, that the Edgewood experimental schools program based its basic document on the demands of a vocal minority and on previous writings about the type of community

involved. Secondly, for various reasons, the internal evaluation unit was not functional for the first year and when it did begin, and conducted a needs assessment, the staff's ideas about what was needed, even though partly at variance with the survey findings, were rather solidly entrenched, making changes at that stage difficult. The tenacity with which the project personnel clung to the espoused program elements, even in the face of evidence contrary to the assumptions, were not unusual in such a case.

The recommendations to practitioners interested in programs designed to effect substantial change, then, are primarily cautionary statements that should greatly assist in both the proposal preparation as well as the conduct of the funded program later:

- . Considerable care should be exercised in basing a proposed program on conclusions drawn by expository writers who have collected little hard evidence or who used instruments that had undergone few or no tests on their psychometric properties.
- . Equal care must be taken when "sounding" the opinion of any group about what is needed for that group; those who are most willing to come forward and vocalize their felt needs may not represent the majority of the community from which they come.
- . Even though proposals must necessarily often be based on scant evidence, objective data on needs should be collected as soon as possible and the possibility of modifying the program in keeping with these new data should be specifically included in the working plans of the project.
- . Data on felt needs should also be collected periodically during the conduct of a long term project since these may change in the interim and make the project "outdated."

Broad assumptions about a group of people, in this case Mexican Americans, seldom survive research scrutiny. Similarly, programs that treat a whole group of people as if they were alike, rarely enjoy continued support. Both cases were present in the Edgewood experimental schools program and it is the considered conclusion of the external evaluators that some of the premises upon which the project was built and conducted caused many of the difficulties in implementation and reduced the probability of success.

Processes in the Edgewood Program

An essential ingredient in the experimental schools program, both under the US Office of Education and the National Institute of Education, was that local authorities were to design the local project and make the decisions about its conduct. The federal project officers, for the most part, offered suggestions and general guidance, and in a few cases, withheld funding for a component or activity until satisfactory plans had been

submitted. According to the district authorities, the channel of communications for the experimental school project, as with all programs in the district, were to have been:

1. Component director/staff prepared plans and budget for its activities.
2. Component plans were reviewed/approved by the Associate Superintendent for the project.
3. These were in turn reviewed by the Superintendent of the district.
4. The Board of Education reviewed/approved the plans.
5. The plans were finally submitted (in this case) to the project officer of the National Institute of Education for his review and approval.

All interim reports and products were to follow the same review procedure. Whether from operational expediency or other causes, the plans, reports, and products were sometimes submitted simultaneously through the local channels and to the National Institute of Education, or were submitted provisionally to the institute for suggestions. Further, some of the details of projects or activities were considered to be internal to the experimental school program and did not require submission through the channel. The schools within the program were also not managed totally under the direction of the Associate Superintendent for the Edgewood School Plan. Matters concerning other federal programs, the cafeteria, the plant, state adopted texts, and some other facets of the school operation were managed through the regular district administrators or in conjunction with them.

It was the conclusion of most of the administrators involved and of the external evaluators, that the alternatives in the channels of communication resulted in:

- . confusion in the management of the process,
- . dissatisfaction with some of the activities because of what was felt to be a lack of involvement, and
- . disassociation from some of the processes by those who felt themselves outside the structure.

At the same time, the last director of the program concluded that the lack of program authority in some areas, and the complexity of the system for obtaining approval, unduly constrained what he and the other program officials could accomplish.

The obvious recommendation is that a clear system of review and approval be established and utilized in such a widespread effort at change. Indeed, since the district was listed as one of the subjects of change, the involvement of the board of education and the general administrators would appear to be imperative, even to the point of the activity level. It would seem nearly impossible to change the district if that body did not know and approve of the changes. And in any event, the net result was that almost no one was satisfied with the management of the process, further emphasizing the need to implement the recommendation.

A second difficulty with the communications was that of not disseminating information about the project to the rest of the district. Several administrators stated that they were denied access to the materials even when they had requested them and others noted that they had no information about the relative success of the activities. While some did hear about the project through teachers and students, the information was incomplete and sometimes in error. The conclusion, therefore, was that:

- . The incomplete information system about the program led to varying opinions about elements within it and seldom resulted in strong support for its activities.

The recommendation, of course, is that an entire district be incorporated into an informational system that describes the processes and products, even though tentative, to the rest of the system members. Much of the positive work of an experimental project can be incorporated early and more completely into a system if the information is available.

The system also denied important information to the project staff or provided it piecemeal and in an unconvincing manner. Thus the staff did not always know or realize the importance of the lack of interest/outright disapproval of some of its activities. In conclusion, then:

- . The experimental staff continued to invest resources in activities that had little or no chance for survival after funding from the federal government ceased.

In a relatively simple series of research activities, external evaluation obtained considerable data about several of the program's efforts and was able to predict accurately among those that would and would not be retained. Any intervention project should, it is recommended, maintain a two-way channel of communications with other actors and audiences within its purview so that it can concentrate its efforts into those activities most likely to produce salutary effects and/or continuance.

Finally, the local decision making element of the experimental schools program, coupled with the incomplete isolation from full information, caused the forces internal to the project to depend primarily on its own information. Thus when changes in personnel occurred, which they did frequently, the internal feedback system itself was modified, and these new staff members often rejected work that had been begun by previous staff and embarked upon new ventures. Again, because of local decision making, the internal evaluation was not required to monitor and test ongoing activities and so provide objective data for internal program design or modification. The combination of these circumstances necessarily led to strong conclusions that:

- . This informational system, that depended primarily on internal sources, brought about severe limitations in the amount and kind of change that could be effected.
- . The lack of objective data contributed to some fragmentation of the program and to some inaccurate judgments about their own efforts.

- . This same system, however, led to an enormous production of processes and materials, many of which, if examined carefully, might offer great utility to other programs in this or other districts.

The recommendations resulting from these conclusions are that every project needs a system that will provide accurate and complete data about its operations to it but, at the same time, some flexibility in the utilization of the input should be provided so that a maximum of creativity will be engendered in keeping with the goals of the program. Thus it is recommended that the system be carefully constructed to furnish the data but that the operational system be allowed the latitude necessary to produce.

In summary, then, the management system did not provide for the review/ approval of some project activities and this appeared to cause some of the lack of support that was experienced. On the other hand, the several channels allowed a flexibility that otherwise might not have been available. The communications system was incomplete, resulting in low participation of some of the district actors who were expected to be changed by the project. Additionally, by not choosing to monitor the effectiveness of some of its treatment projects, the staff lacked some information that could have been useful to it. An overall recommendation for the processes of experimentation is that setting up semi-autonomous units within a working system leads to problems in both management and communications and should be avoided if at all possible.

Interim Products of the Experimental Program

The means toward the improvement of the student affective and cognitive impacts were viewed as interim products of the Edgewood School Plan. The curricular materials produced, staff development conducted, classroom instruction and management, and internal evaluation constituted important facets of the experimental program. In combination, they were expected to change the students and the system.

A very large quantity of curricular materials was produced during the five years and most of them were implemented for at least a short time and a few persisted in use for two or more years. The quality of these was generally good for preliminary versions. Few efforts at revision after initial implementation were evidenced and only a few of them were incorporated into the partial subject/grade specific curricular designs of the last two years. The specific conclusions about the materials included:

- . The applicability of the English language materials to the intended grades and subjects was generally acceptable, including the readability levels for the treatment children.
- . The readability levels of the Spanish language materials were frequently considerably above the measured reading ability of the intended children.

- . How much the students learned from the materials was seldom measured by the project.
- . Revision of the materials was not often carried out; mathematics was an outstanding exception.

The recommendations concerning the materials logically include the need to develop a scope and sequence curriculum as a guide to revision and further production; the necessity of producing materials at the levels the students can use; the utility of measuring student learning from the materials; and the requirement of effecting revision of those materials that demonstrated weaknesses.

Staff development conducted a wide range of learning opportunities for the teachers and others in the system even though the component was handicapped by late program approval and high teacher turnover. Some study of the opinions of the trainees was conducted in conjunction with the internal evaluation unit. Utilizing the project's own findings, plus those of the external evaluation studies, provided the following conclusions:

- . The training appeared to have provided substantial amounts of content for the implementation of the program.
- . Efforts toward changing the teacher-student relationships encountered little success; the relationships were primarily positive, however, making further improvement difficult.
- . Teaching about individualizing instruction modified teacher classroom behaviors little when conducted in isolation; such training, when coupled with the provision of individualized materials, appeared to have moved high school classrooms toward individualized instruction.

Overall, staff development activities were seen as contributing to the general movement toward innovation and the increase in the number of certified and masters degree teachers in the district. One general recommendation emanated: staff development should be tied very closely to the curricular materials and methodologies being implemented. Generalities may be useful but project specific training is more likely to produce measurable results.

While some of the work of the internal evaluation unit contributed information about the experimental program to the staff, and in some cases to the district, other efforts appeared tangential to the primary efforts. Some interim products, notably a tri-dimensional system for studying classroom instruction, spoke directly to the goals of the program. No general conclusion was drawn about this element of the project. Rather, the investigators concluded that the Edgewood School Plan should have decided to measure, quite specifically, what it implemented in the classrooms, that is, the impacts of its work. Much of the dispersion of the internal evaluation effort into side issues contributed to the incomplete information the project obtained about itself and its functioning. A single recommendation followed: any innovative project, indeed, any instructional program, should set up a careful

and exact monitoring system that will aid in improving its services to its clients.

Expertise garnered from the five years of the experimental program and retained in the district was difficult to assess because the acceptance/rejection process was still continuing at the writing of this report. Some decisions had been made and the conclusions necessarily had to be based on them:

- . The alternative high school program, conducted in conjunction with several other organizations, was retained.*
- . Some administrative, supervisory, evaluation, and instructional personnel were retained in the district, increasing its technical capabilities; several others left the district but their training and experience should add to the total educational capability of the nation.
- . The individualized instruction program in mathematics was retained and portions of it were being utilized in several parts of the district.
- . Several other products of the last two years' efforts in curricular materials development were retained and appeared to be at least partially implemented.
- . Many individual teachers retained the curricular materials issued to them and continued to use these as either supplementary to the state adopted texts or as the primary vehicle of instruction.

Recommendations about these particular items have already been included in other sections. A summary recommendation, however, is tendered because of the importance of the concept of building a district's capabilities through outside funding of innovative projects. One of the main goals of the experimental schools program was that of substantial change within the district. Any project that espouses that same goal, then, should find the mechanism that, from the very beginning, incorporates the project into the total district program, that provides a fruitful communications system about what is being attempted and its results, and involves as much of the system as possible into the entire effort so that knowledge about the expertise developed in the project, and products emanating from it, may have the greatest possibility of acceptance and retention.

*The primary cooperating agency for management of the alternative high school was changed in fall 1977 to the Region 20 Education Service Center in San Antonio, an entity of the Texas Education Agency; previously it had been governed through the Bexar County School Superintendent's office.

Program Impacts on Students

Allusions to the student impacts have already been made in the previous discussions. They are reiterated here because of their importance:

- . Attitude, self concept, and motivation were not changed by the experimental program but since these were already at norm, modification was a very difficult task.
- . Student behavior, in terms of absenteeism, in grade re-tentions, and dropouts, was not improved within the experimental program; importantly, too, these behaviors did not worsen.
- . While some short term increases in student achievement were registered, especially in mathematics at the high school, there were no consistent significant longitudinal differences between treatment and comparison nor were the scores nearer the national norms when analyzed over the five year period.
- . Some positive impact on students was found from early family services component activities outside the classroom.
- . Many students benefitted from a one year program for the high school diploma equivalency and from the two year alternative high school project.
- . Some community members, also seen as students, earned undergraduate college credits through the community education project.

The general conclusion, then, about student impact, would have to be that those in grades K through 12 did not appear to have increased in affective or cognitive development but that the experimental schools program had a substantial impact on those that had dropped out of school and some who progressed toward a college degree.

A corollary conclusion to these findings was that, from the evidence accumulated across the five years, no practical relationship existed between the affective characteristics of the students and their academic achievement. This was true whether attitudes, self concept, or motivation was examined and whether the bilingual Mexican American students' affect was tested in English or Spanish. To state the conclusion in another way: these students' affective characteristics and academic achievement were not related to each other. It is therefore recommended that:

1. Programs wanting to carry out affective improvement activities for the sake of the affect itself do so, but without the expectation that it will concomitantly raise the achievement scores of the treatment students.

2. Programs whose primary goal is the improvement of academic achievement should expend their resources on the basic skill areas of general language, reading, and mathematics skills, on materials proven to be applicable to the achievement levels of the students, and on those teaching/learning techniques that allow for a maximum of exposure and practice within the time the students are in school.
3. Programs intending to impact the community should assess the community's needs and then address those directly and with sufficient resources, as did the Edgewood project in its high school and college preparation programs for adults.

A wide dispersal of effort into many kinds of instructional activities, and an equally wide variety of research/evaluations, would appear less likely to achieve direct student impact than a concentrated program. Certainly concentration of effort on the basic goals is recommended before tangential issues are addressed.

The Experimental Schools Experience

Few opportunities have been provided for schools to undergo extensive and sustained modifications of their administrative and instructional systems. The much publicized Head Start and Follow Through programs are exceptions and certain aspects of bilingual education have persisted for several years. All of these, however, were limited in scope to a few early grades. The National Institute of Education's experimental schools program, therefore, represented a departure from the usual federal funding norms in that both practitioners and researchers were allowed to study the implementation of a large scale, kindergarten through adult education programs. The experience in the Edgewood Independent School District, in San Antonio, Texas, while only one of those funded in the program, was an important opportunity for the educational community.

Implications for Practitioners

The Edgewood experience, as with those in the other experimental schools sites, was complex. By the regulations establishing the program, the validity of the rationale, goals, means, processes, and products were examined meticulously. In each of these, and indeed in the examination itself, some deficiencies were found and reported. Total fulfillment of the expectations of either the practitioner or the research communities was not realized. The temptation, then, is to concentrate on the flaws, of which there are always many, and judge the five year effort as unsuccessful. The reality, of course, is a combination of both successes and failures when individual items within the programs are considered. And, most importantly, as much may have been learned from the failures as from the successes, thus the external evaluators render no final judgment on the experiment in the Edgewood schools; instead, this final section of the final report offers a series of considerations about the past and for the future.

First and foremost, the Edgewood experience was largely a Mexican American experience: community, school board, administrators, teachers, students, change agents, and researchers. Because of past social, economic, and educational conditions, Mexican Americans as a group had had limited opportunities to participate fully in programs they had designed out of their own felt needs and carry out those designs to fruition. That Mexican American experience, then, was an important attribute of the program that involved the planning, execution, and analysis of the results. The very fact that the community was able to exercise its right to experiment, and to succeed and fail, was a singular asset of the experience. Totally objective measurement of that experience is obviously an impossibility but some expressions of the results are noteworthy.

One of the most frequent topics of discussion by those that participated in this program is the necessity of "knowing what is true and what is not true" about the Mexican American community. A healthy skepticism about what has been written about this ethnic group by others and by themselves is often manifest. They ask questions about where, how, and why reported research was conducted. They test remedies proposed against other research and against their own knowledge. Broad generalizations are frequently rejected; simple solutions are usually held suspect.

Another facet of the post experimental schools project Edgewood reality is the willingness to experiment. This is not to say that the professionals in the district have come to believe in innovation for innovation's sake. Quite the opposite is true. Some of the most visible changes in 1977-1978 are returns to or adaptations of quite conservative educational practices. In many ways, these represent experimentation in that a great deal of innovation has been examined, found lacking, and some older practices, especially those related to the basics of reading, writing, and arithmetic, have been modified and implemented. These changes, however, are not completely conservative orientations but are integrated with and in some cases are integrated with innovative approaches to the teaching-learning process. The Edgewood educators neither feel compelled to be "conservative" or "liberal" in their attempts to improve their students' achievement; they can pick and choose those that appear to be best suited to the needs.

Edgewood also learned some lessons about the management of its affairs. Secrecy, "ego trips," partial truths, and outside intervention without the express approval of those in authority have been repeatedly rejected during the months following the termination of the experimental schools program. That is not to say that that program presented more or fewer of these than others for it didn't. What it does say is that the district, through its several experiences, has learned an important lesson: success does not come from platitudes nor from special interests, it comes from a lot of hard work, sharing what is learned with and by others, and continually striving for improvement.

When the information from this project is disseminated across the nation, two kinds of benefits can be derived. The general experience of Edgewood in conducting such a program can aid other educational institutions by making it possible to capitalize on the strengths of this example, and

there were many, and avoid some of the weaknesses in project design, implementation, and communication, to mention a few. Trial and error, especially without data, is too costly in many kinds of resources for school districts. Being able to concentrate on probable success is an important asset to education and the guidance on some of these, as provided through the Edgewood Independent School District project, may well be one of the most valuable contributions of the National Institute of Education effort.

Implications for Researchers

A primary concern of researchers and funding agencies is whether or not long term programs can be satisfactorily investigated. The obvious answer from the five years' work on the present project is affirmative. While Development Associates would not minimize the difficulties attendant to longitudinal studies, some of which appeared here, especially when undertaken on large scale populations and experimentation, the generally successful conclusion of the series of investigations should stand as encouragement to those with the resources for such a project. The complexities of the research problem were a part of the difficulty but they also made it possible to examine some aspects of education, and in this case the education of Mexican Americans, that otherwise would have been nearly impossible.

One of the most salient findings from this evaluation was that the premises of this project and those of many others currently in operation for Mexican Americans, contained some serious errors. Some of these were not immediately evident and short term research, especially without the substantial sample sizes, might not have uncovered them. Similarly, while short term instructional projects may sometimes produce results, these do not always withstand the test of time. The reverse can also be true. Generalizations from interim points in the process could have led to further errors about the Mexican American and his learning. Thus the longer time period both allowed sufficient time to examine certain aspects of the program, such as the premises on which it was built, and on the results of the activities, such as psychosocial growth and academic achievement. While measurement should have continued over the five years of possible student impacts, at least the four years measured allowed for much needed evidence for both elements.

The research could not, of course, cover every conceivable need for information about the program or about the Mexican American clients it was to serve. Each of the research reports outlines some important areas in which additional study is needed and followup work on them should be carried out. One major problem remained almost unaddressed. That is, while the investigations spoke frequently to educational treatments that did not produce differential learning in the kindergarten through twelfth grade children studied, there was little evidence about the learning styles or characteristics of the Mexican American student. Similarly, there was little information about the type of program that will produce results under these conditions. Interpreting the results in the Edgewood project along with those from some others gave valuable indications but did not prove them. This report is therefore concluded with a reiteration of a recommendation made several times in the interim and subject specific reports - that carefully planned, executed, and researched projects on the learning styles of Mexican Americans and the programs that promote learning in Mexican Americans are an urgent priority if this group's maximum contributions to the nation are to be realized.

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